

LUCETTE DAVY

# L'EBRE

## ETUDE HYDROLOGIQUE

CARTES

THESE PRESENTEE DEVANT L'UNIVERSITE DE MONTPELLIER III

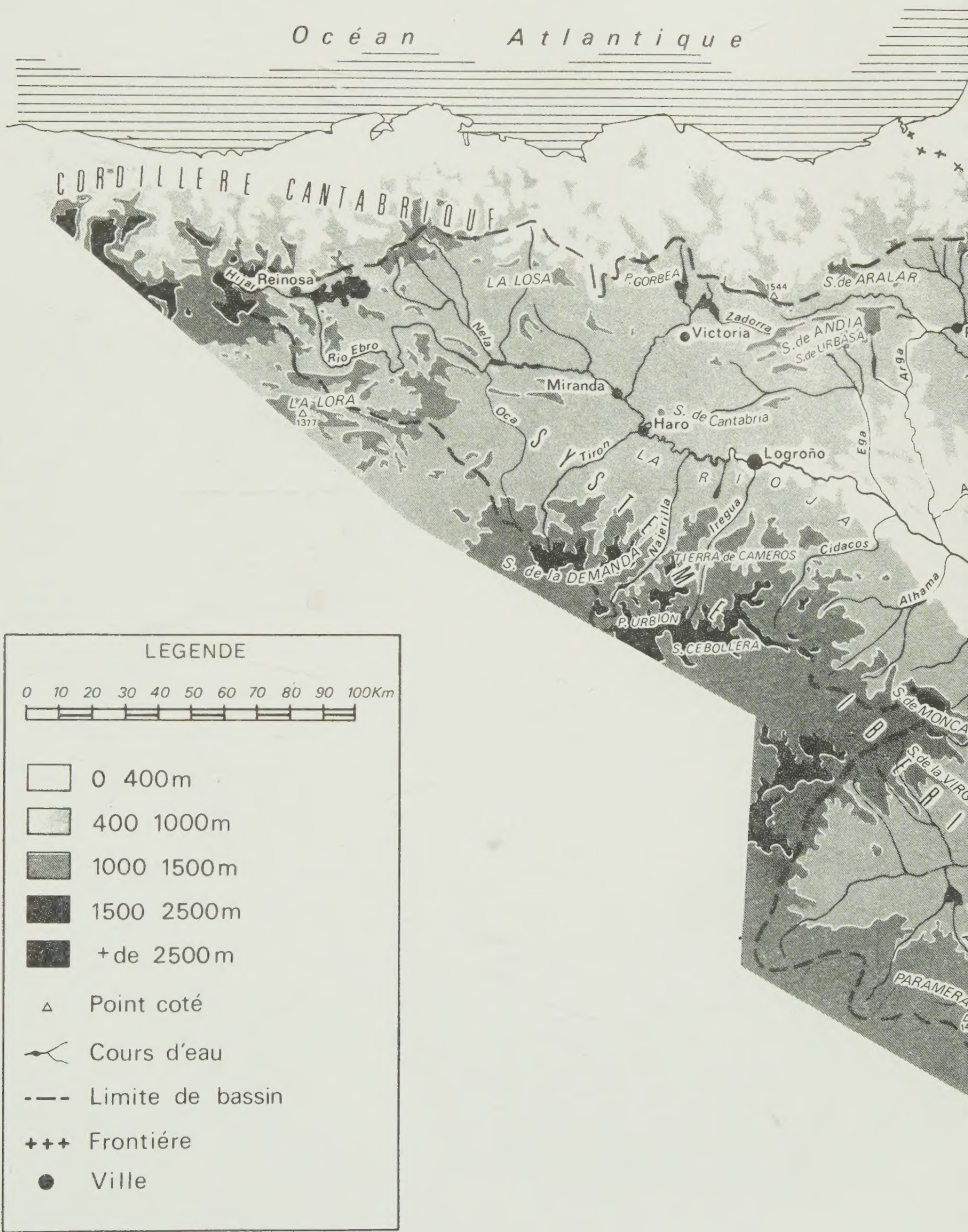
— LE 13 JANVIER 1976 —

ATELIER  
REPRODUCTION DES THESES  
UNIVERSITE DE LILLE III  
LILLE

DIFFUSION  
LIBRAIRIE HONORE CHAMPION  
7, QUAI MALAQUAIS  
PARIS



Fig. 1 CARTE HYPSONOMETRIQUE DU BASSIN DE L'EBRE



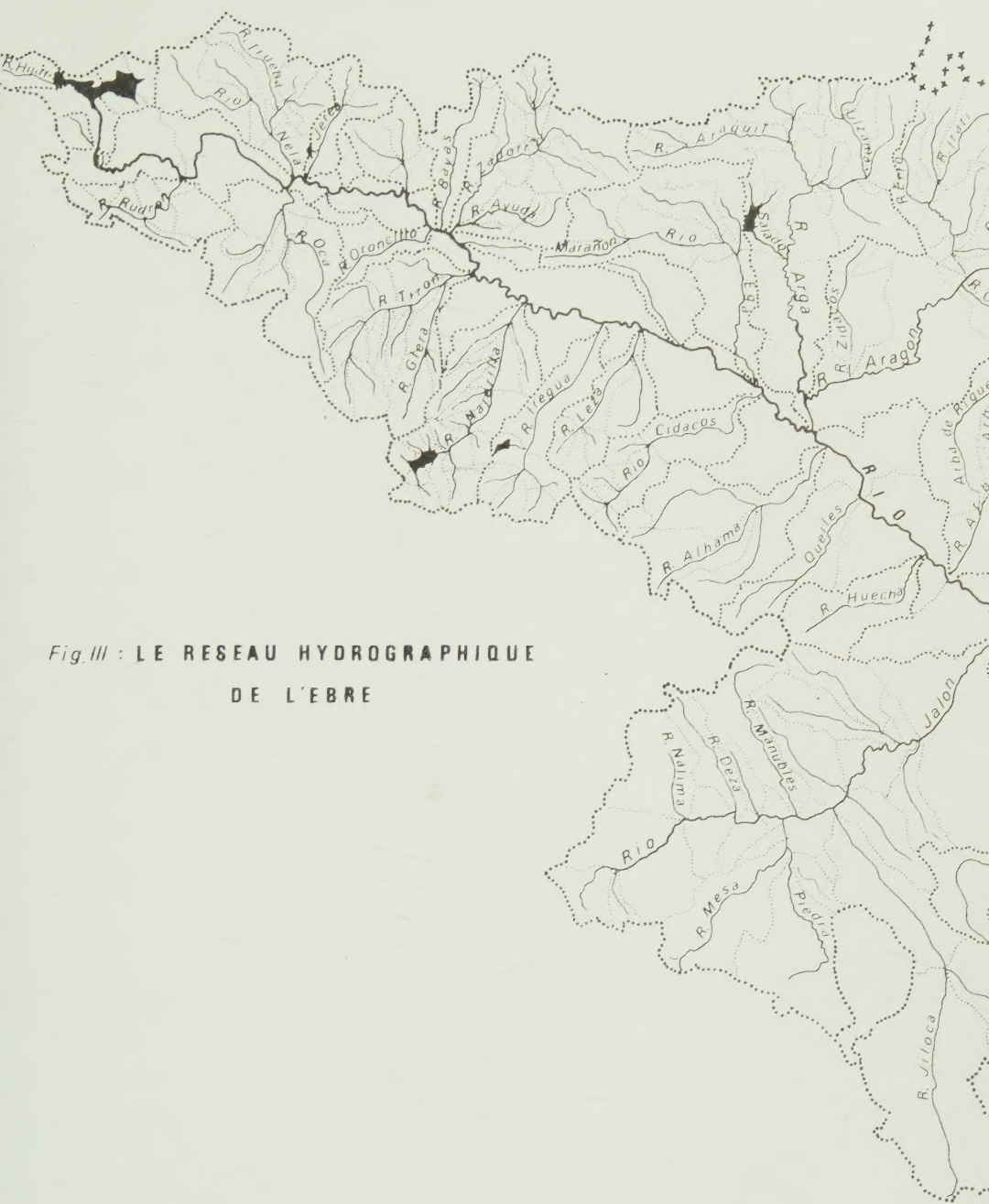


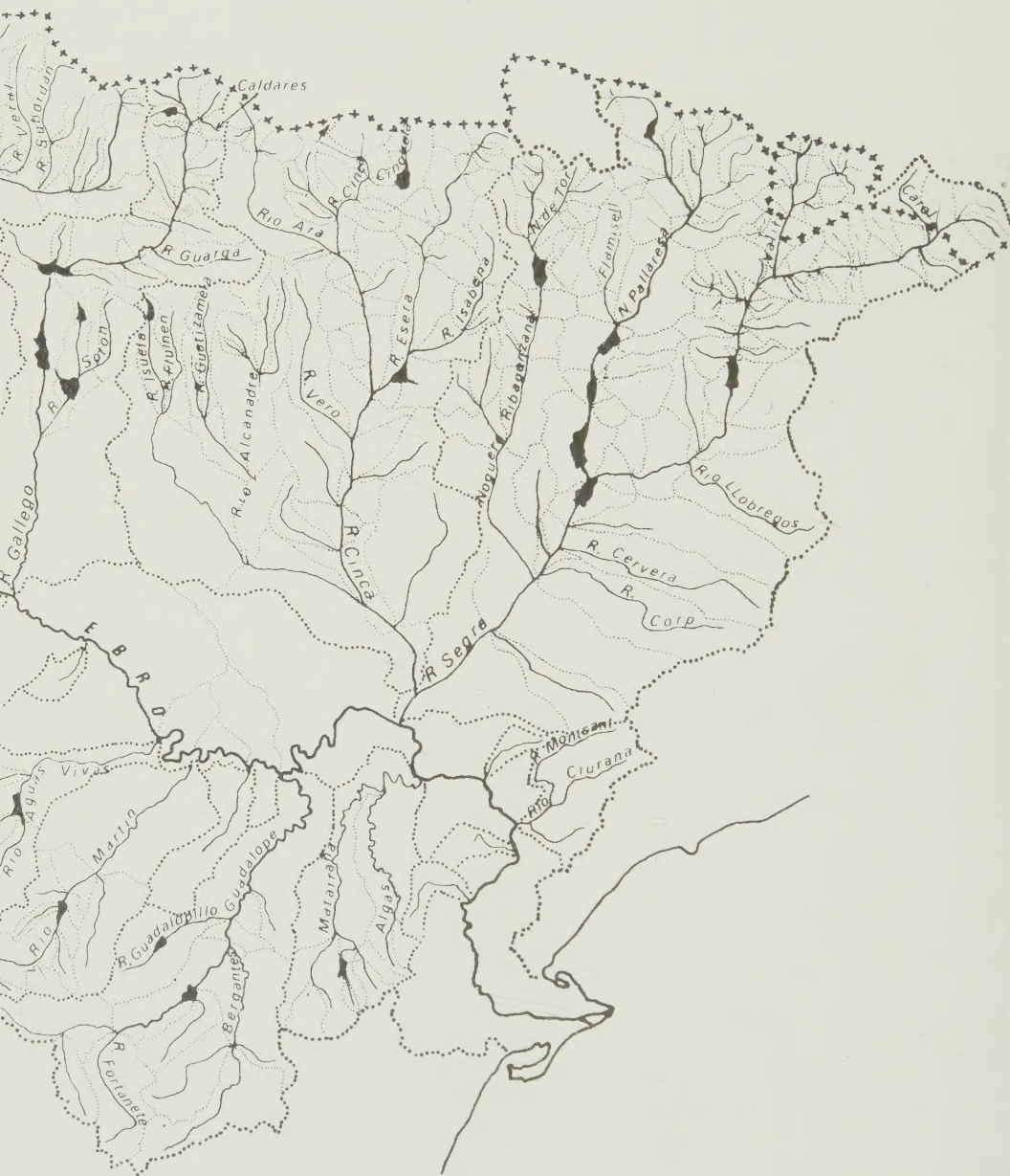


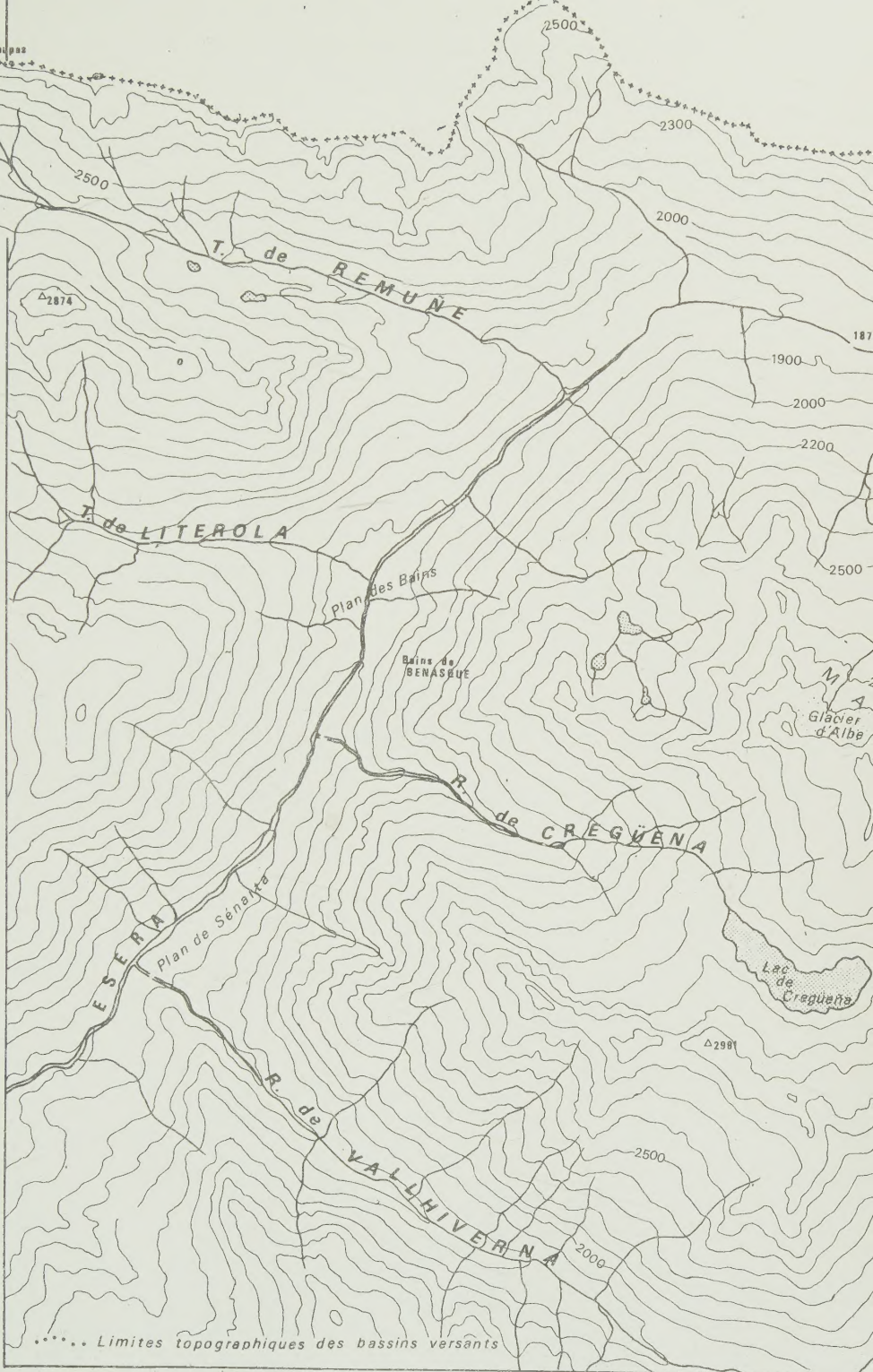
Digitized by the Internet Archive  
in 2026

[https://archive.org/details/IA41548323\\_0004](https://archive.org/details/IA41548323_0004)









..... Limites topographiques des bassins versants

Fig IV: CARTE DU MASSIF DE LA MALADETTA  
ET DE LA HAUTE VALLEE DE L'ESERA

0 500 m 1 Km 2 Km

(équidistance des courbes: 100 m)

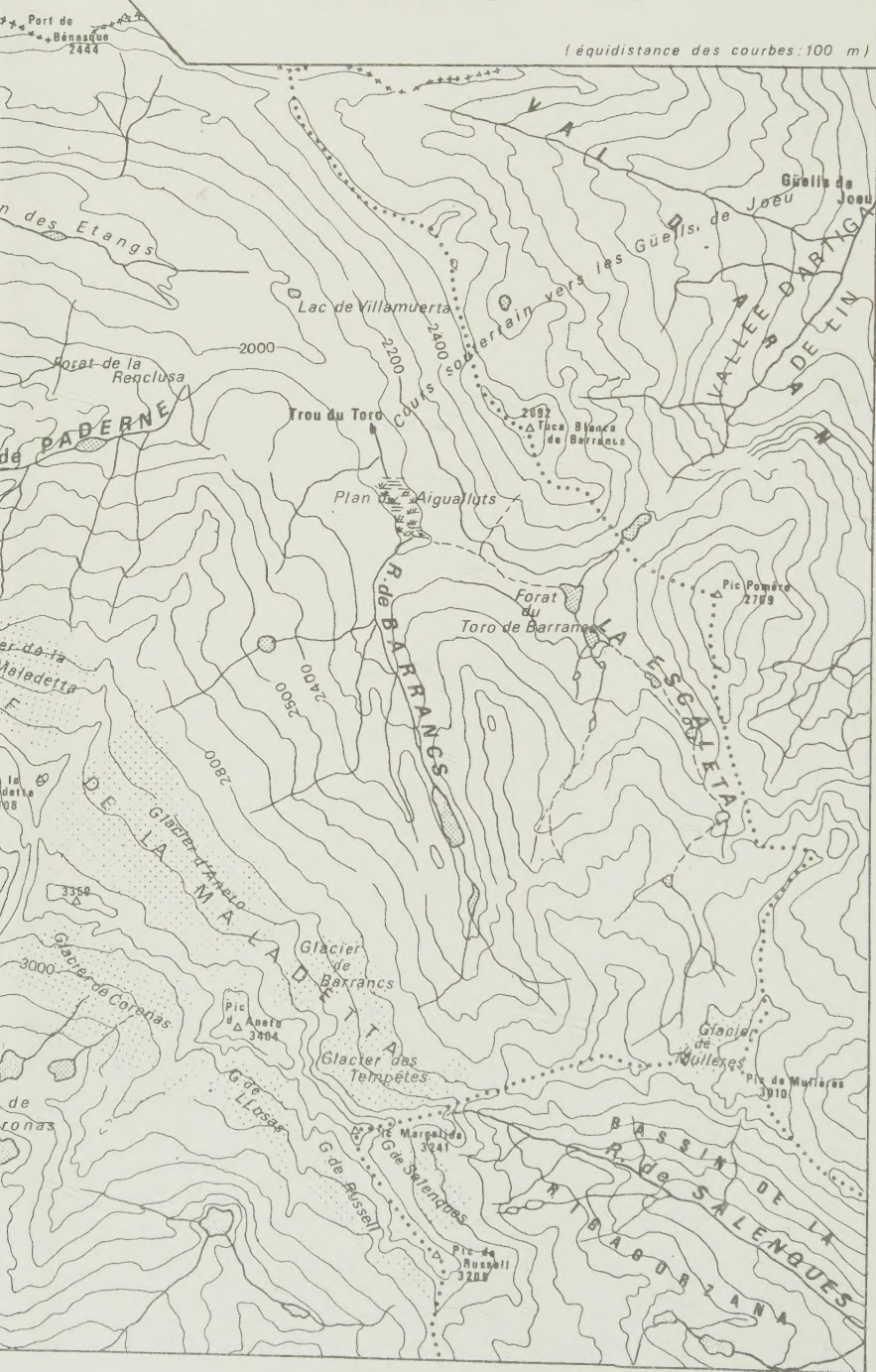


Fig V LE COURS DE L'EBRE D'ALAGON A ZARAGOZA



Légende

-  Falaise
-  Rebord de terrasse
-  Cônes de déjection des torrents
-  Anciens lits abandonnés...Bris morts

Echelle



(D'après M.L. Frutos)

Fig VI LE COURS DE L'EBRE DE ZARAGOZA A OSERA



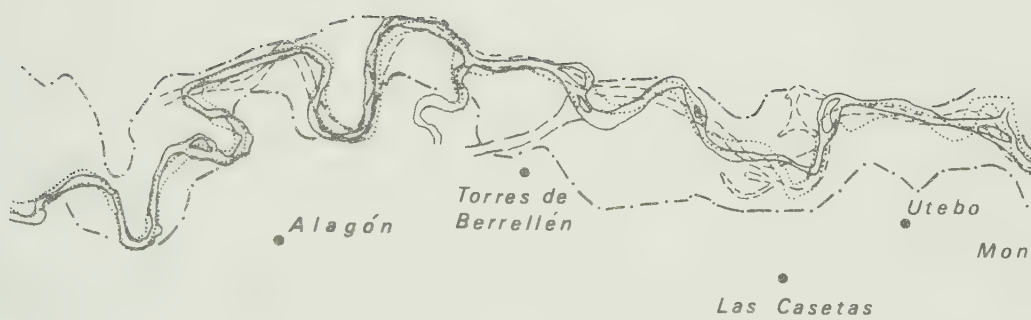


Fig VII : LES V

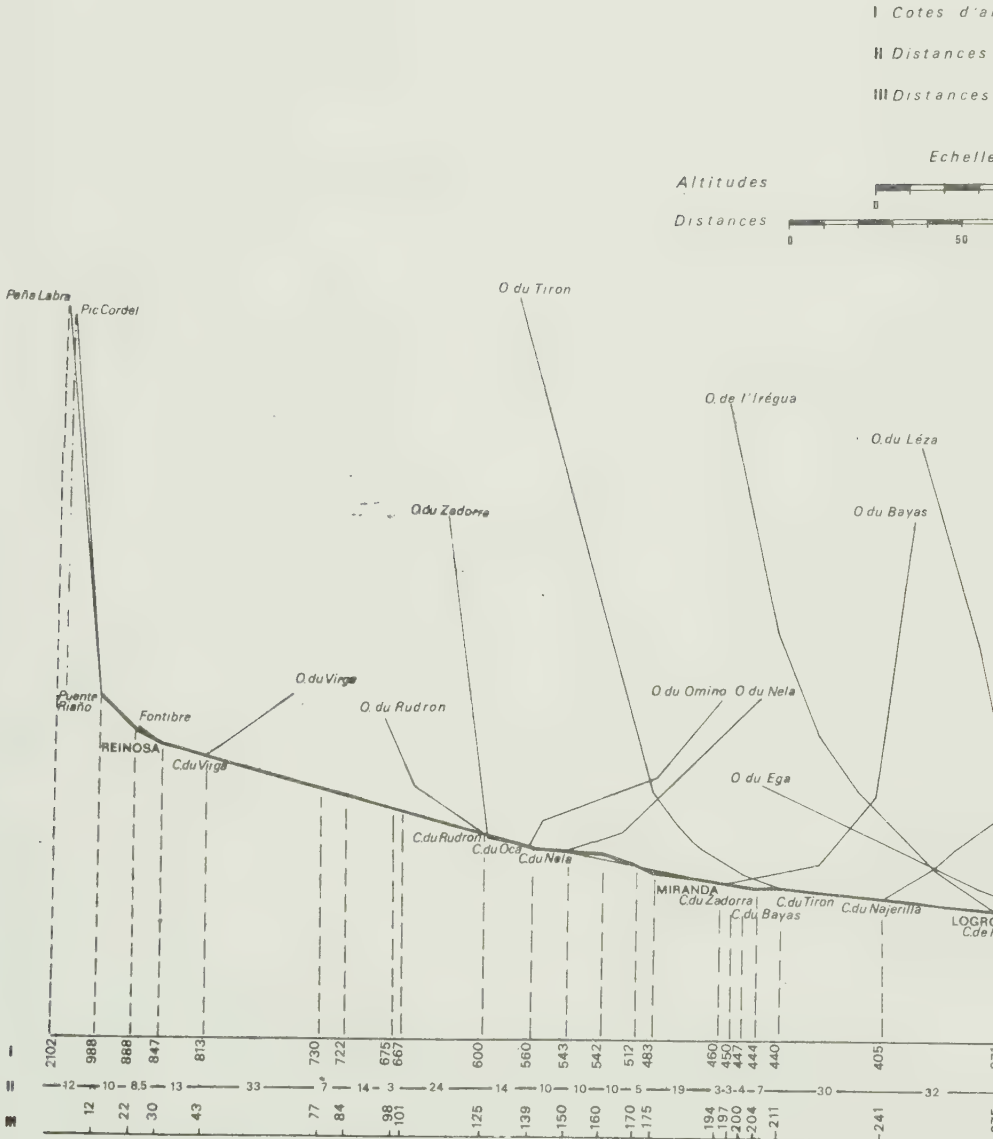




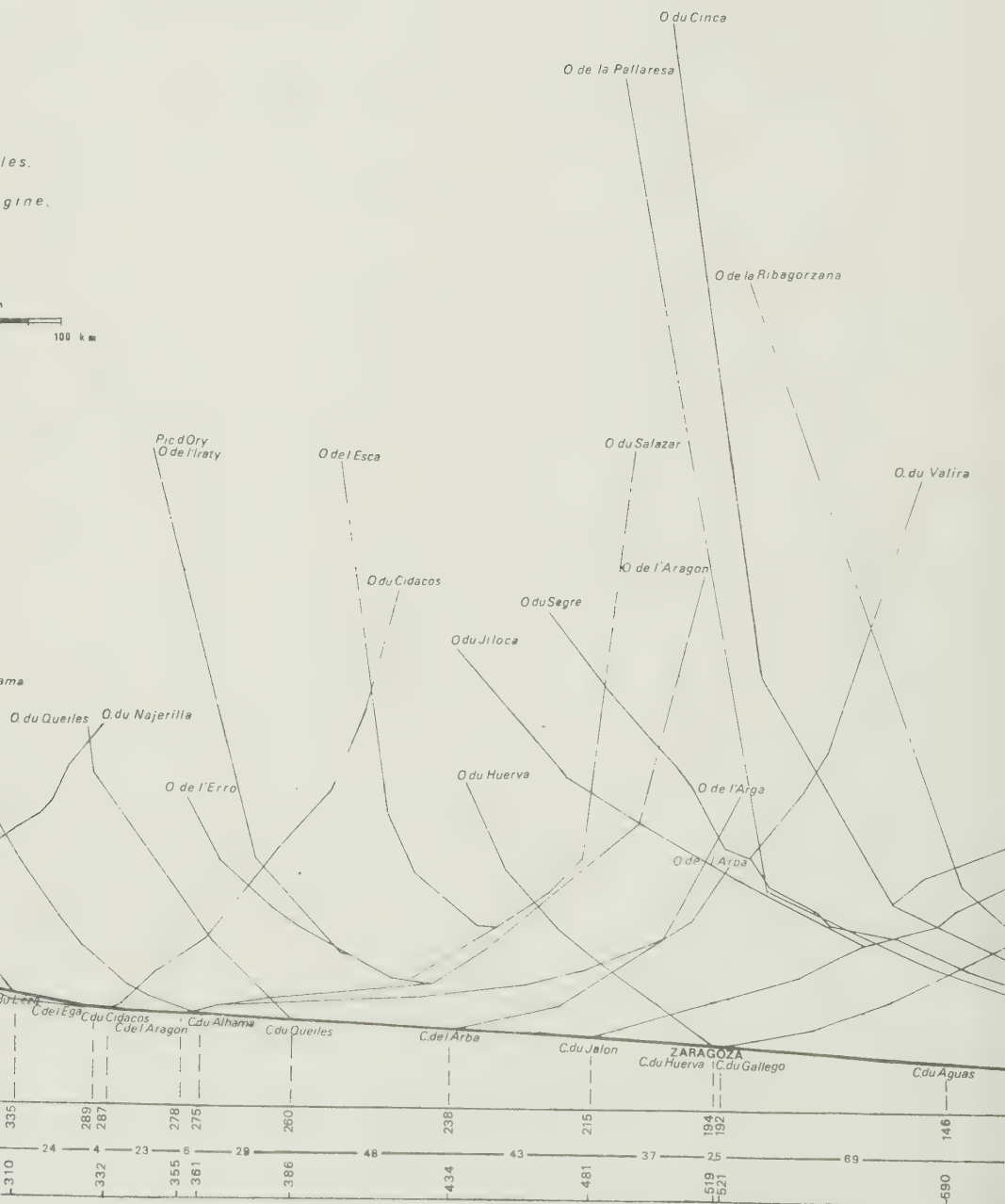
Fig VII : LES V



Fig. VIII : LES PROFILS EN LONG



gine.



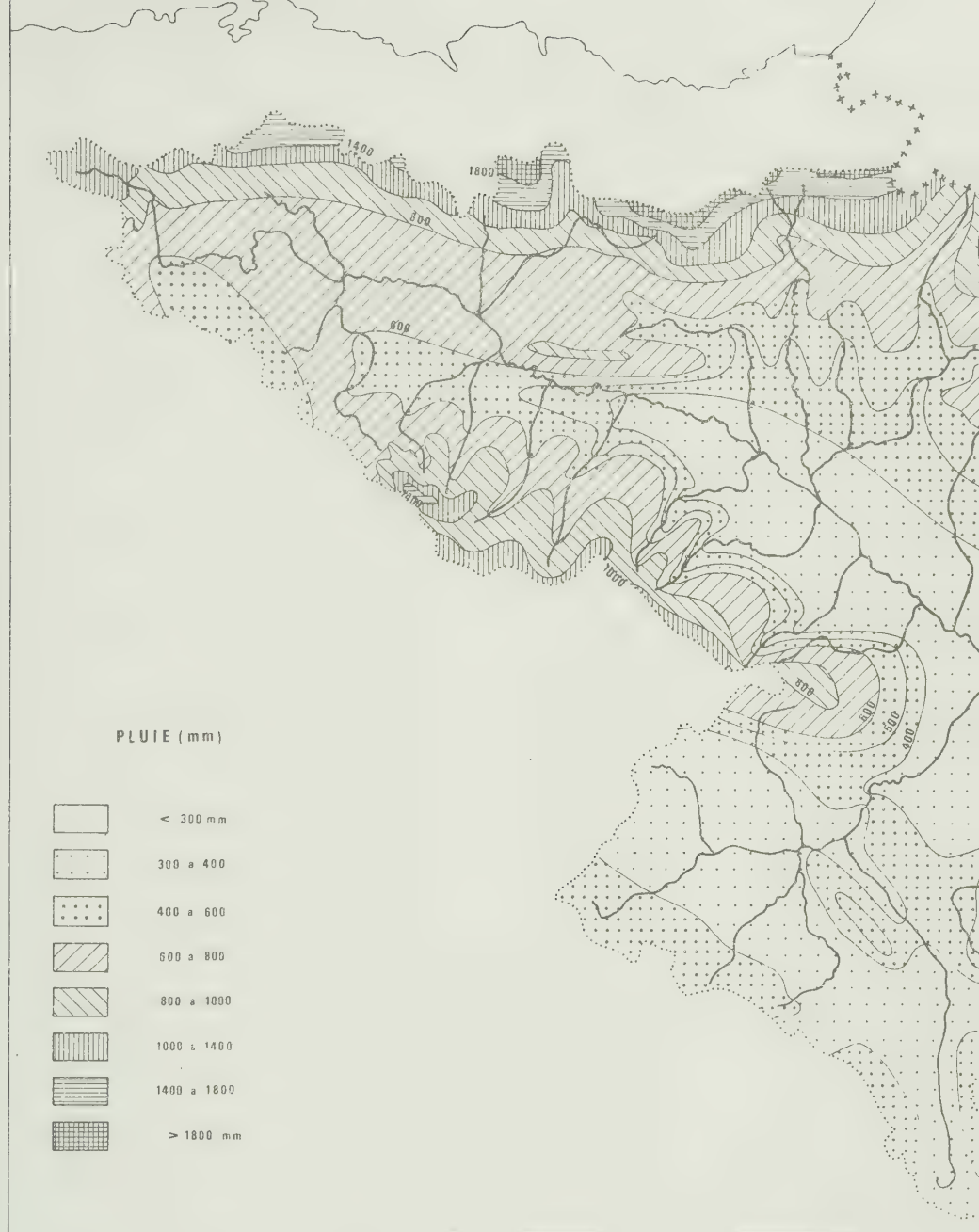
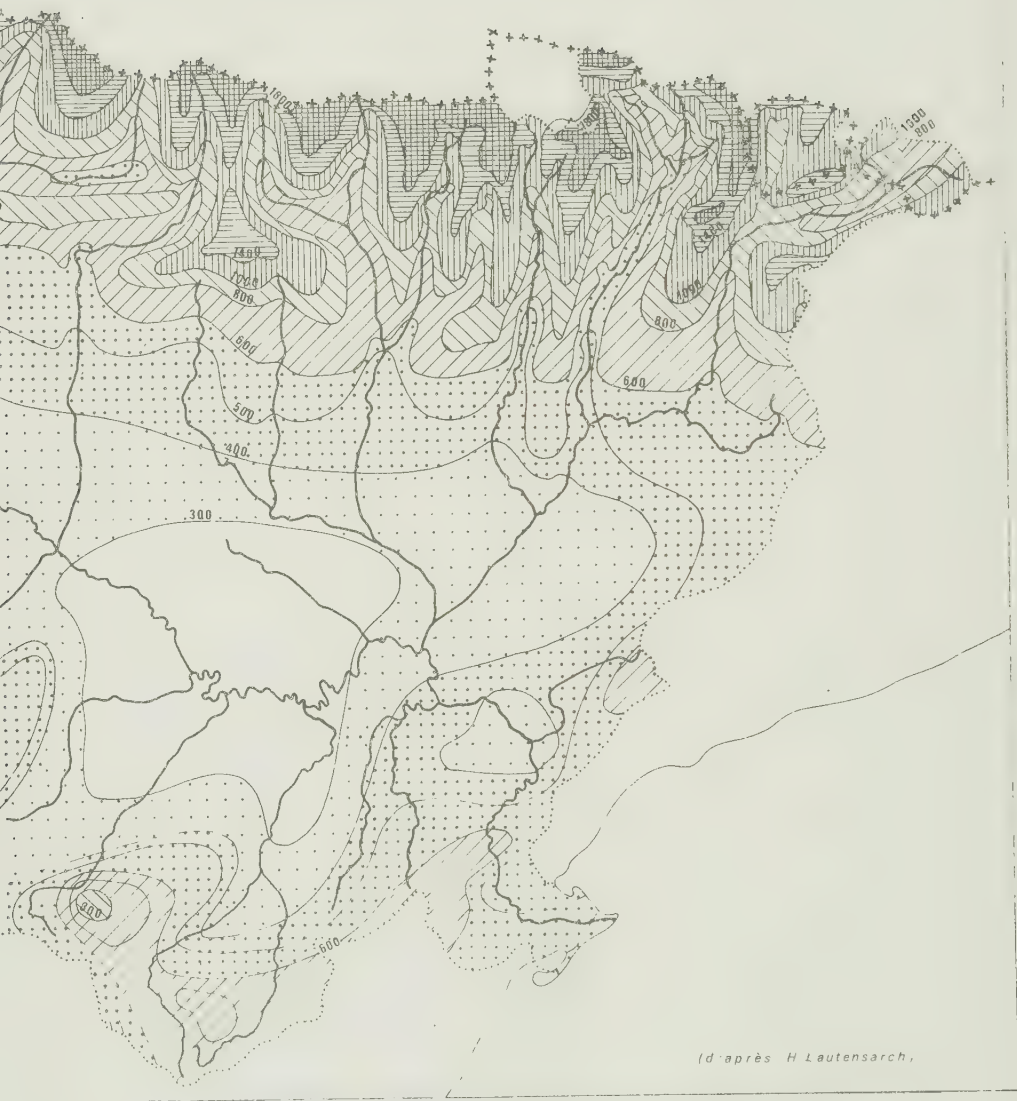
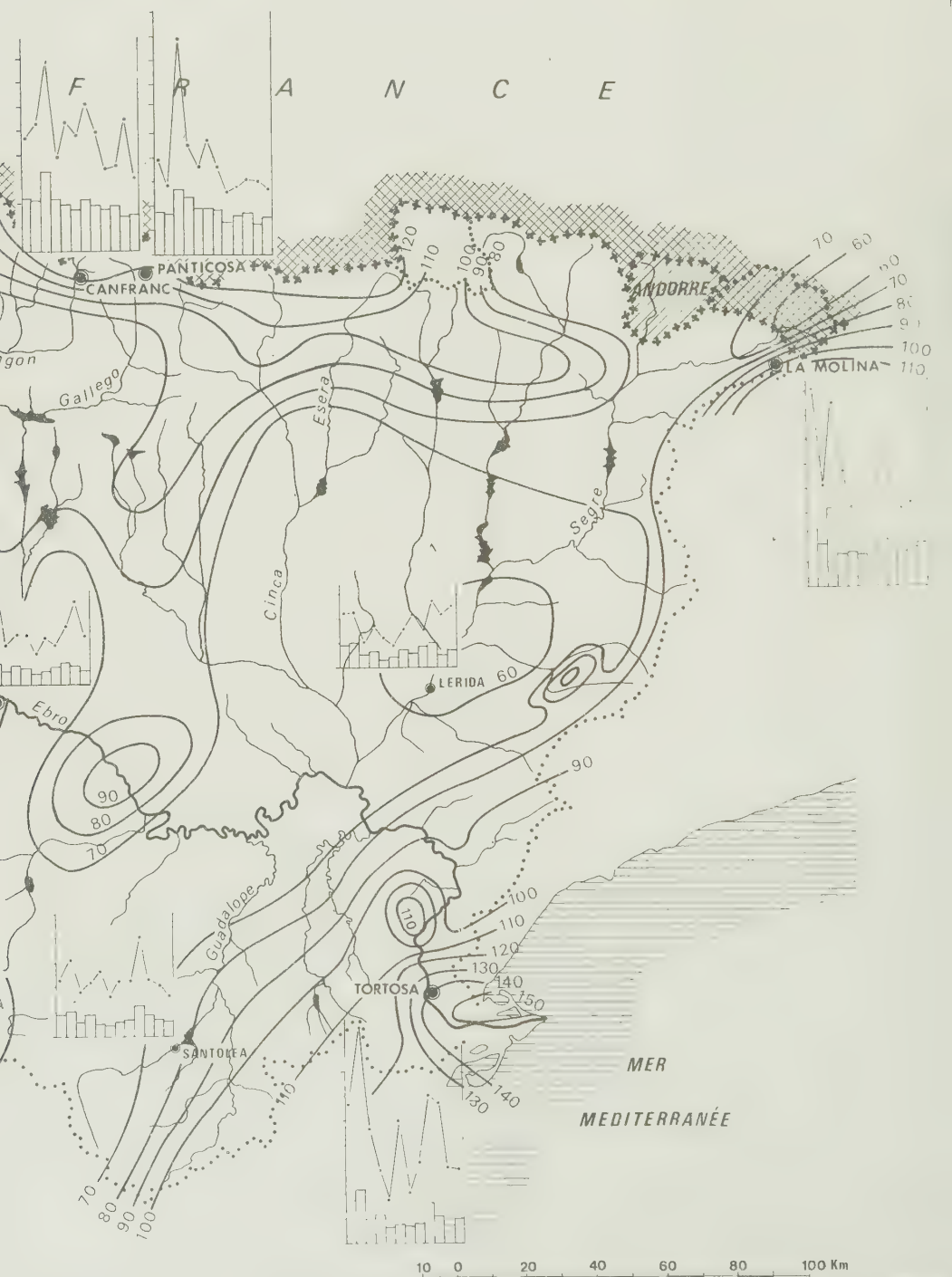


Fig IX : CARTE DE LA PLUIE DANS LE BASSIN DE L'EBRE



(d'après H Lautensarch.)





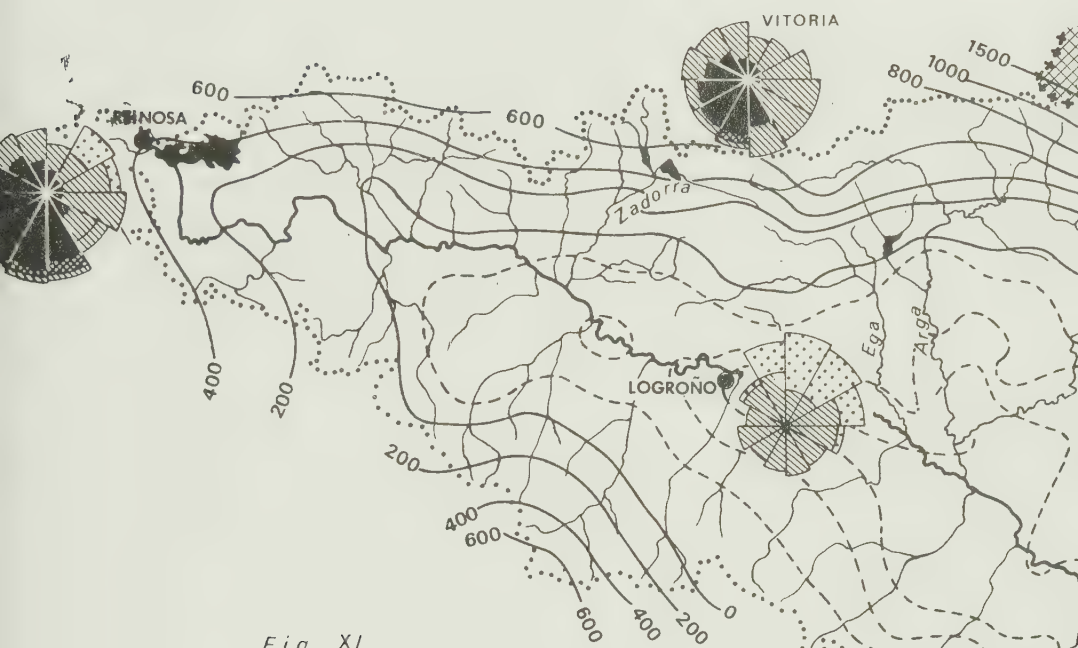
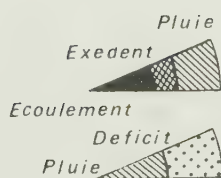
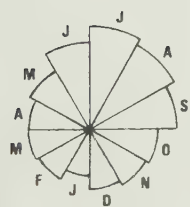
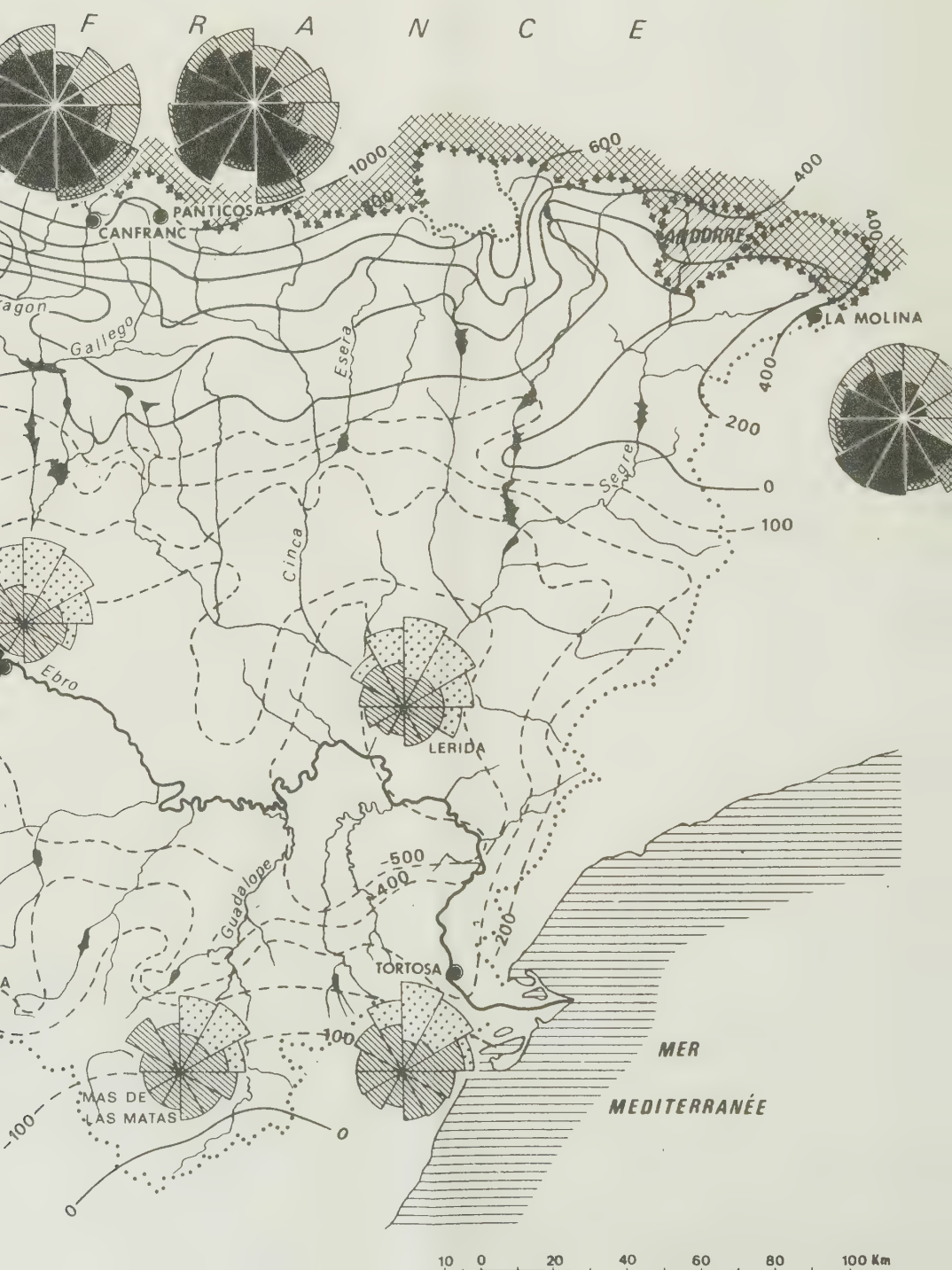


Fig. XI

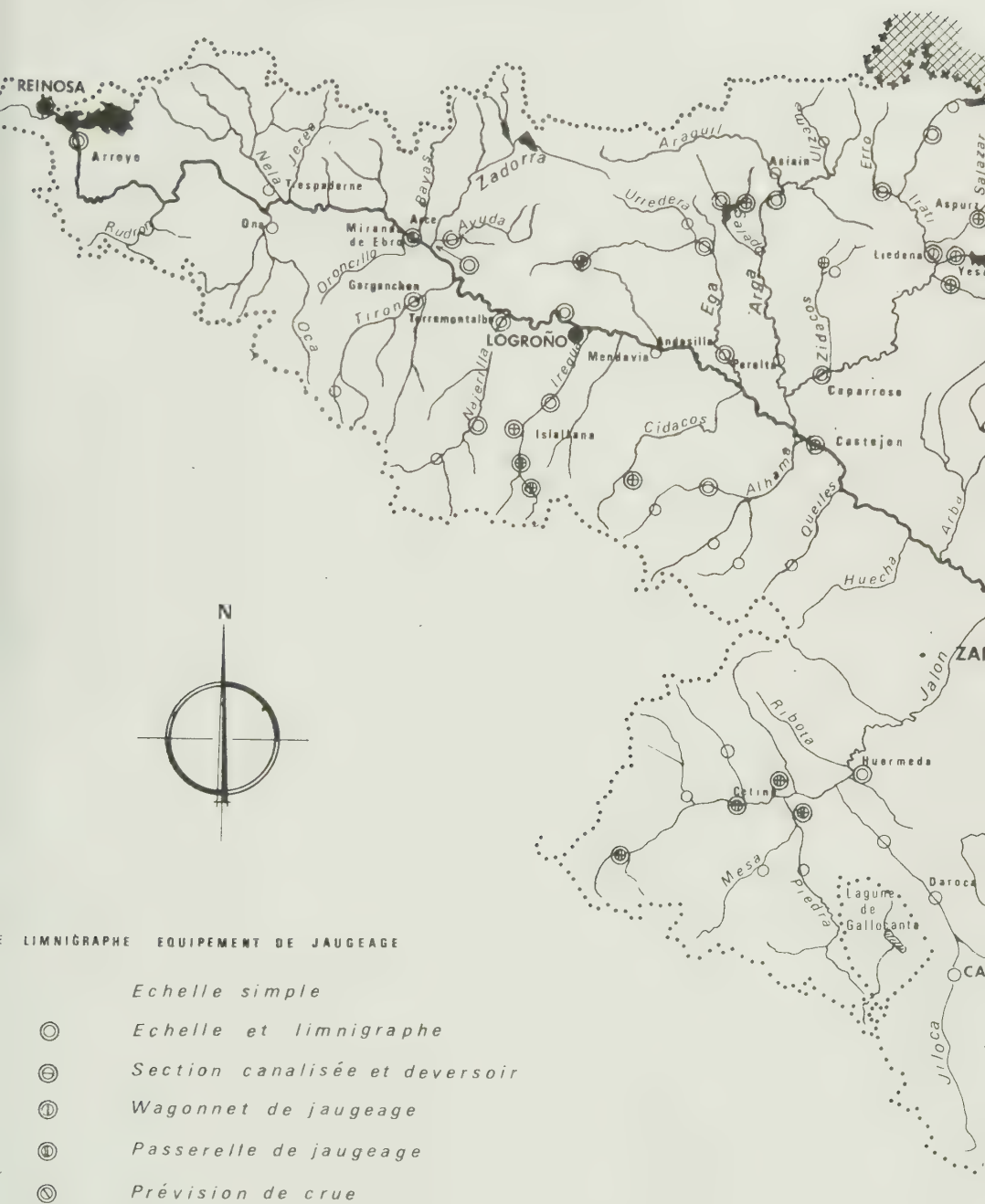
# CARTE DU BILAN HYDRIQUE ANNUEL



$$R = 1,4\sqrt{X}(\text{mm})$$



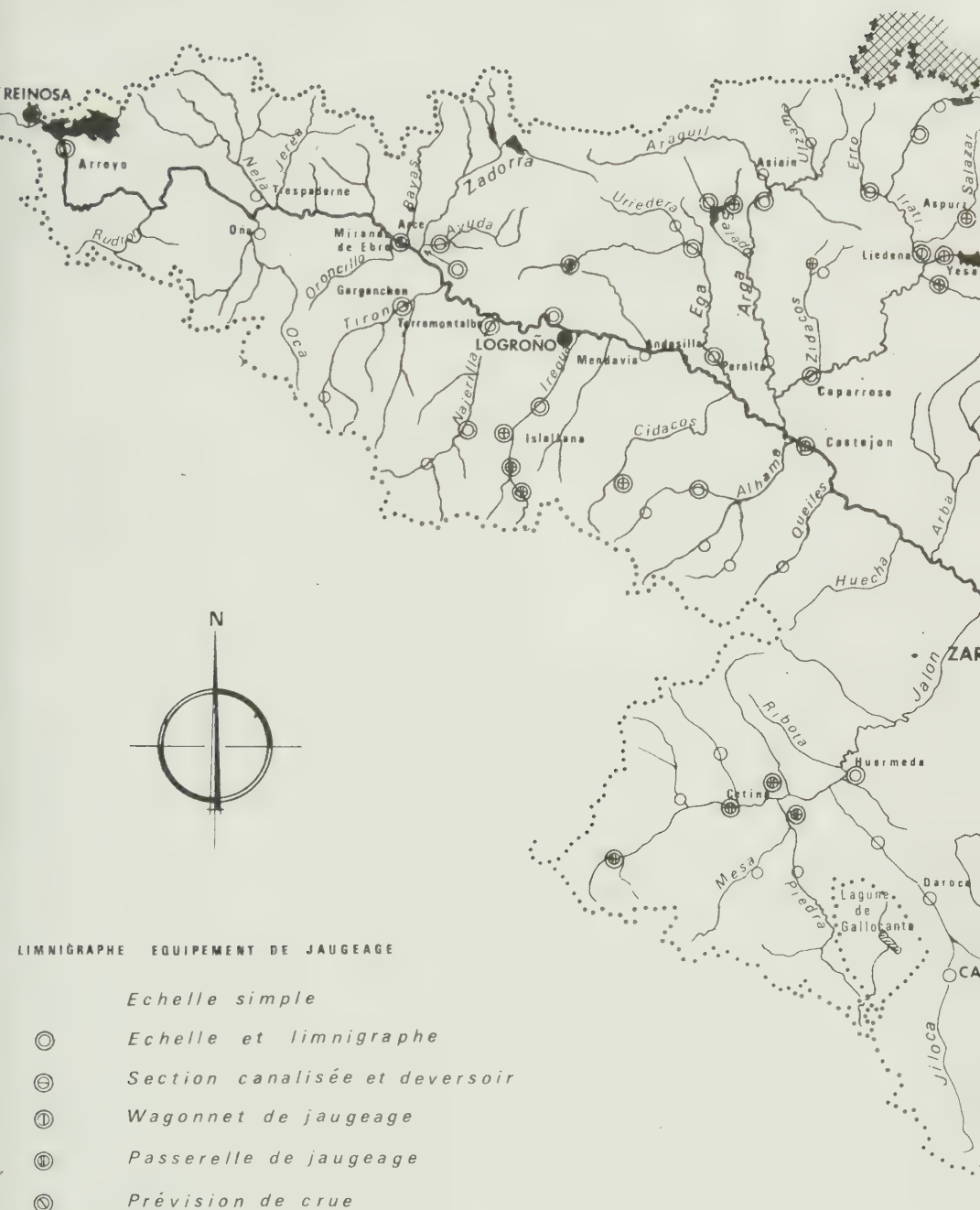
EQUIPEMENT HYDROMETRIQUE DU BASSIN



# F R A N C E



EQUIPEMENT HYDROMETRIQUE DU BASSIN



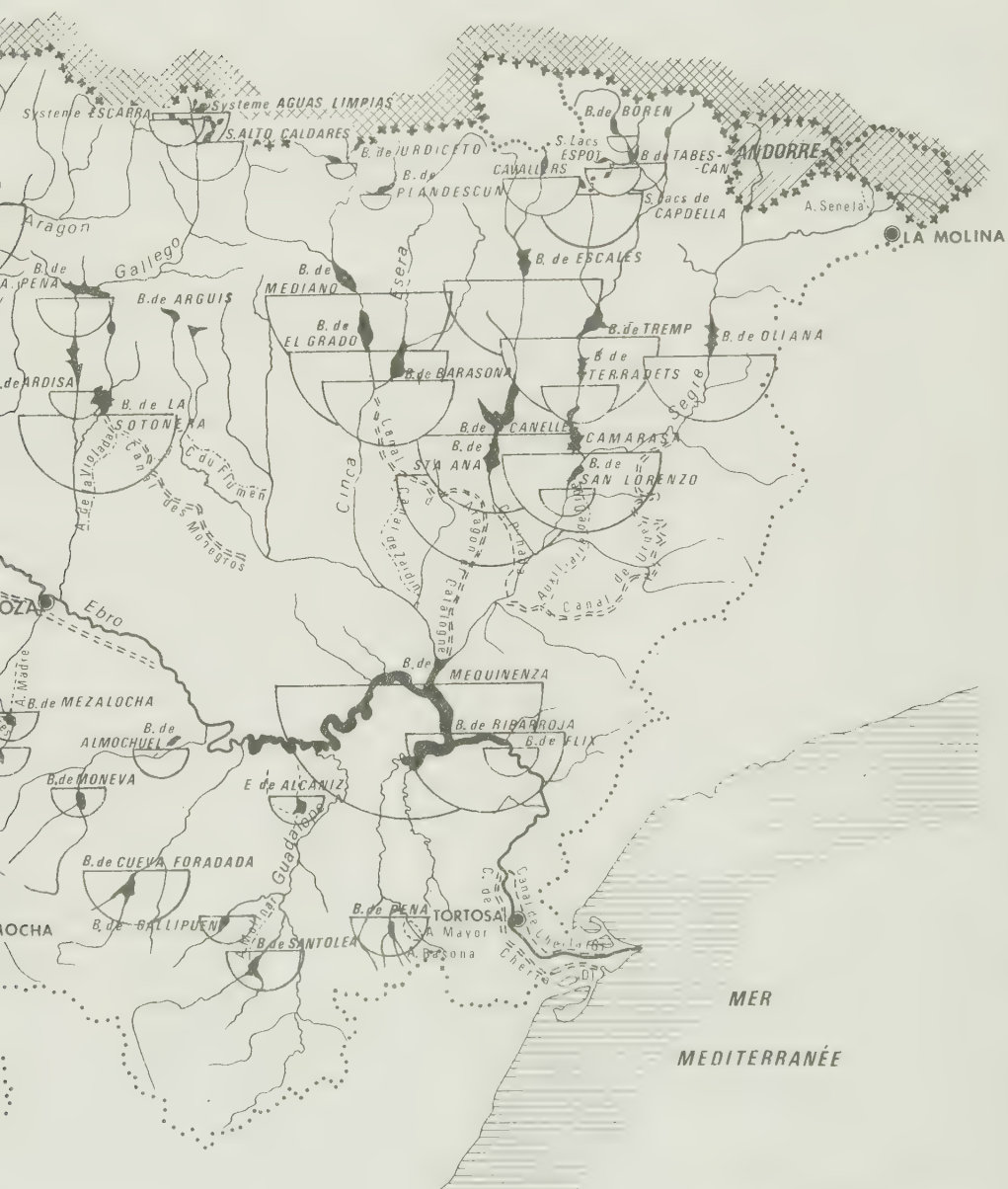
# F R A N C E



10 0 20 40 60 80 100 Km



*F R A N C E*



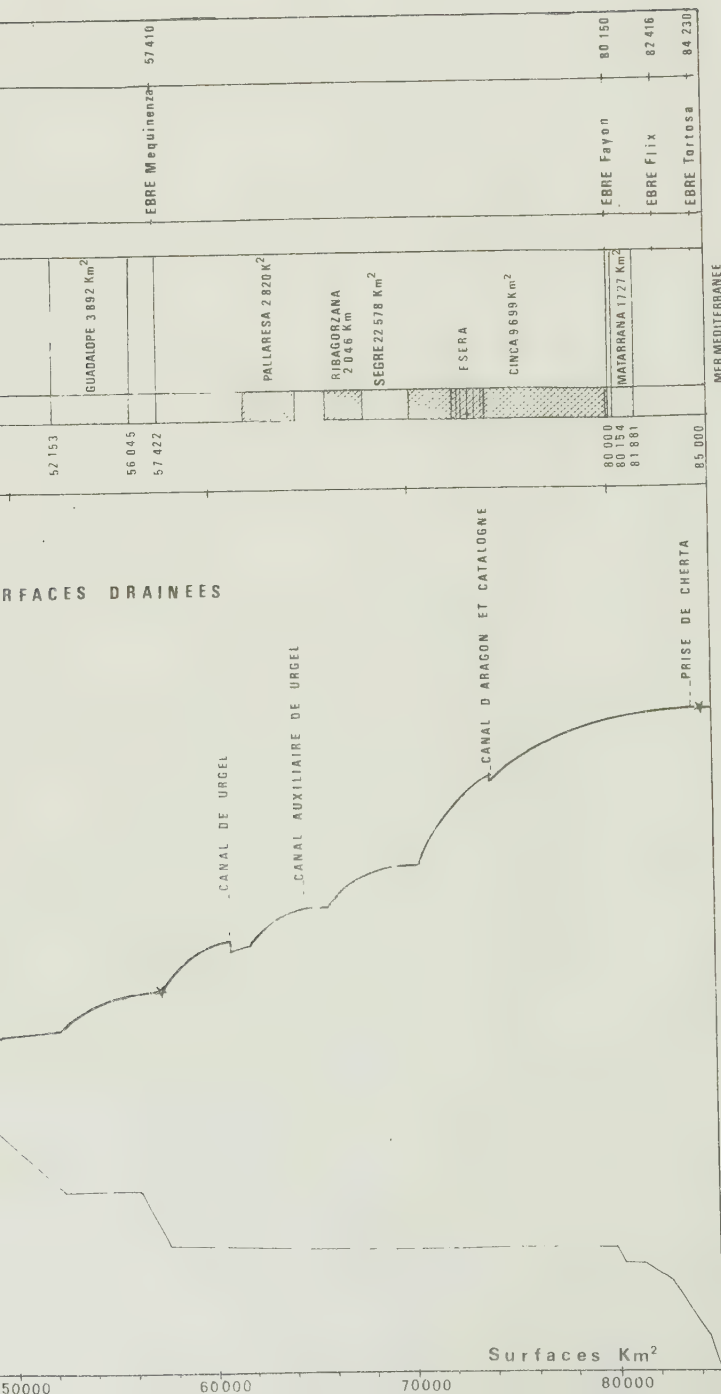
MER

MEDITERRANÉE

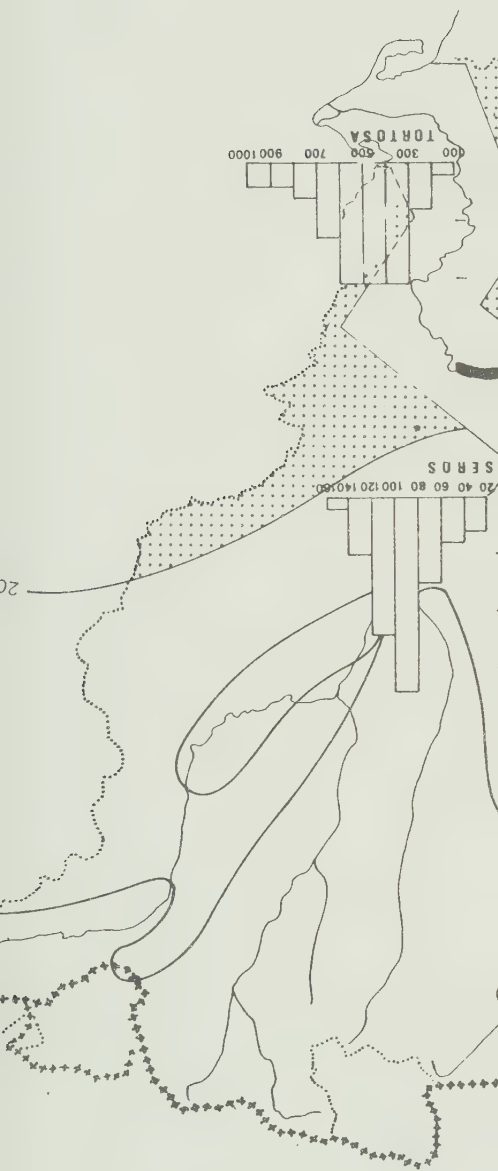


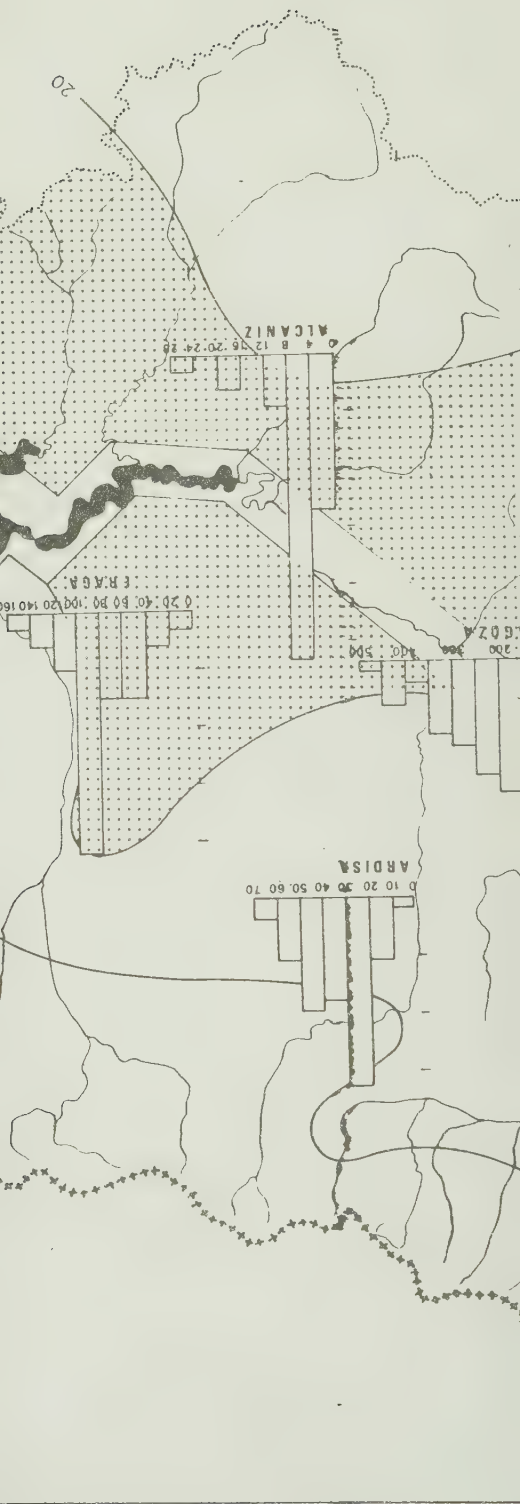


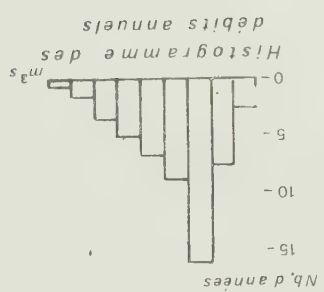
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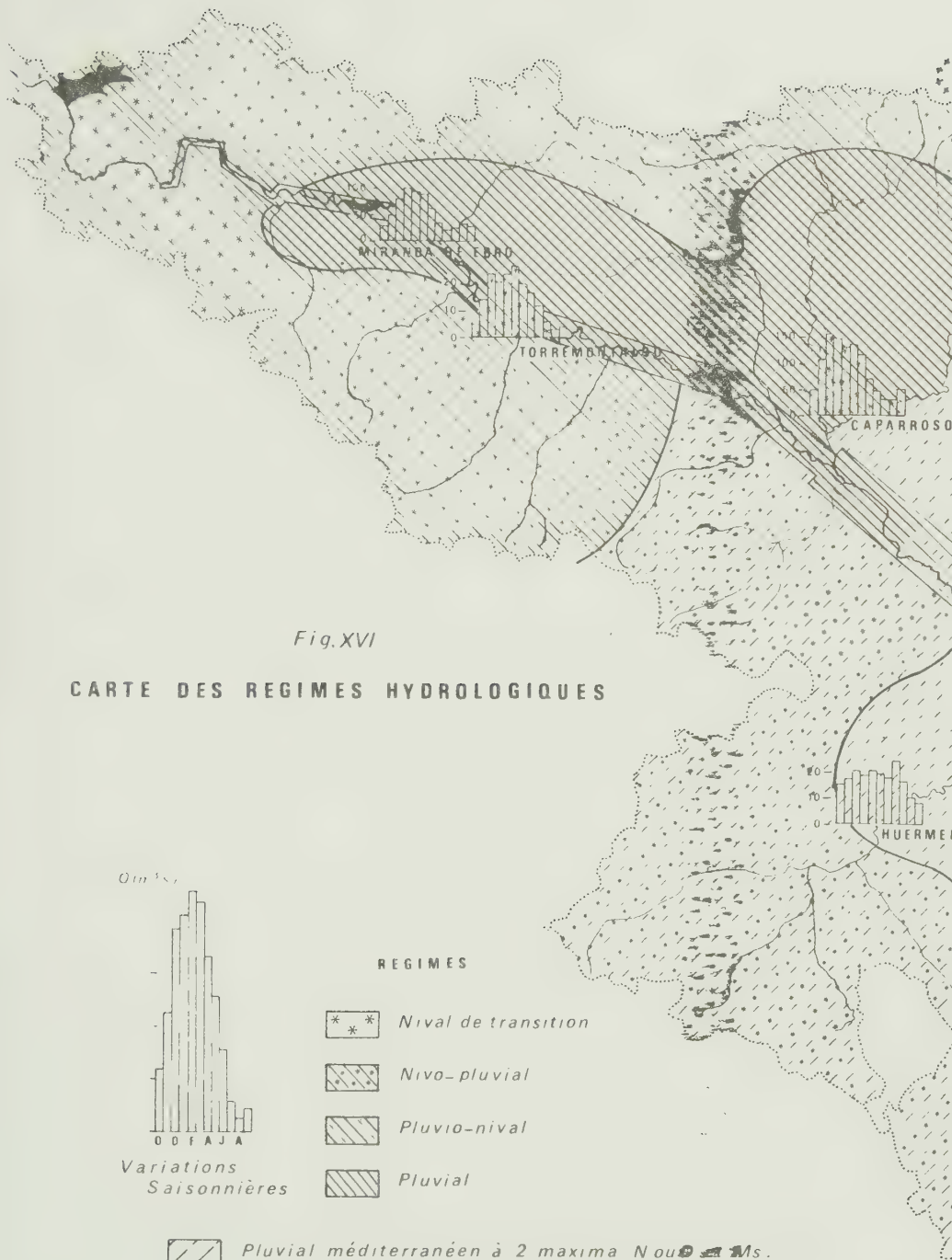
Surfaces Km²







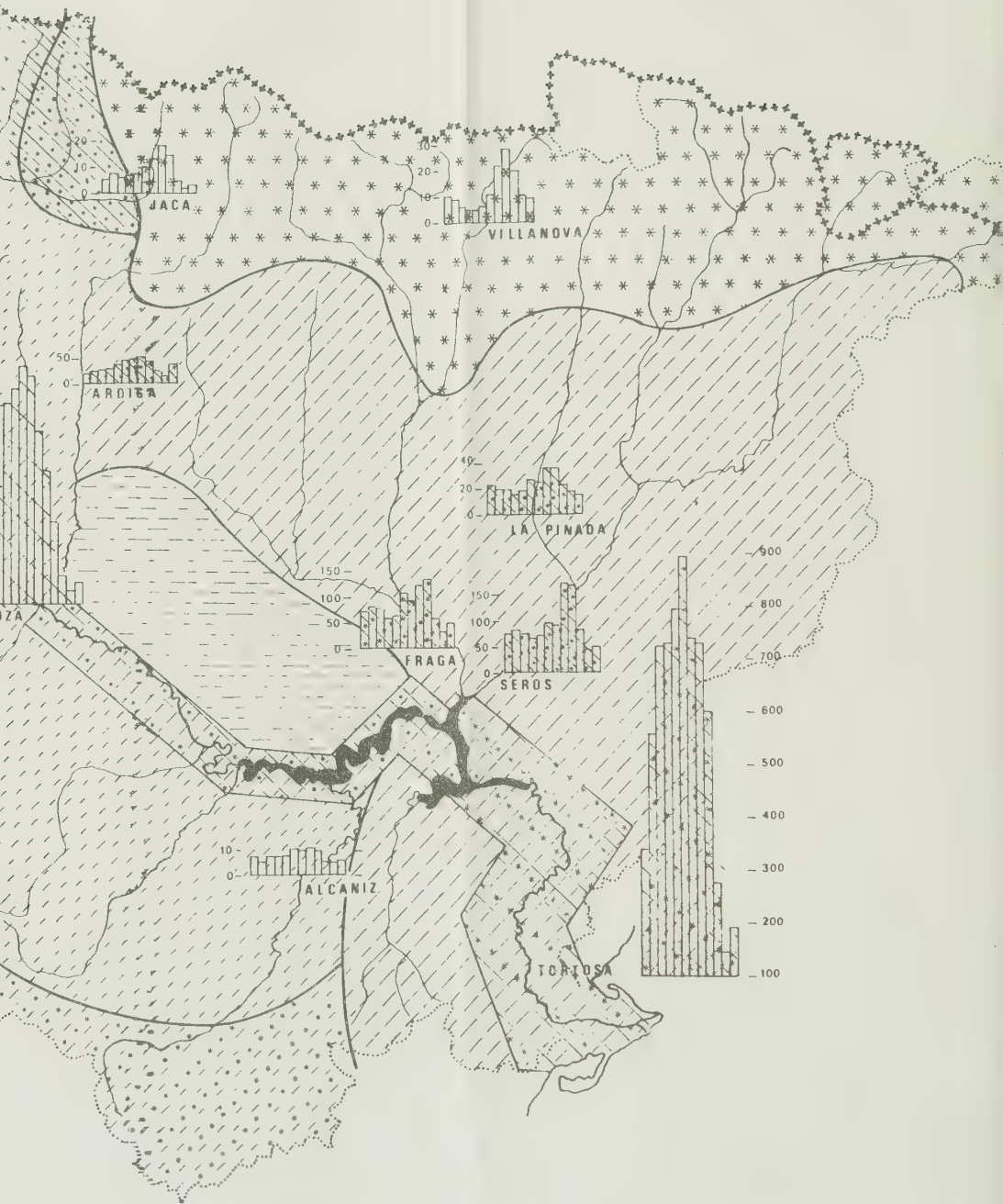


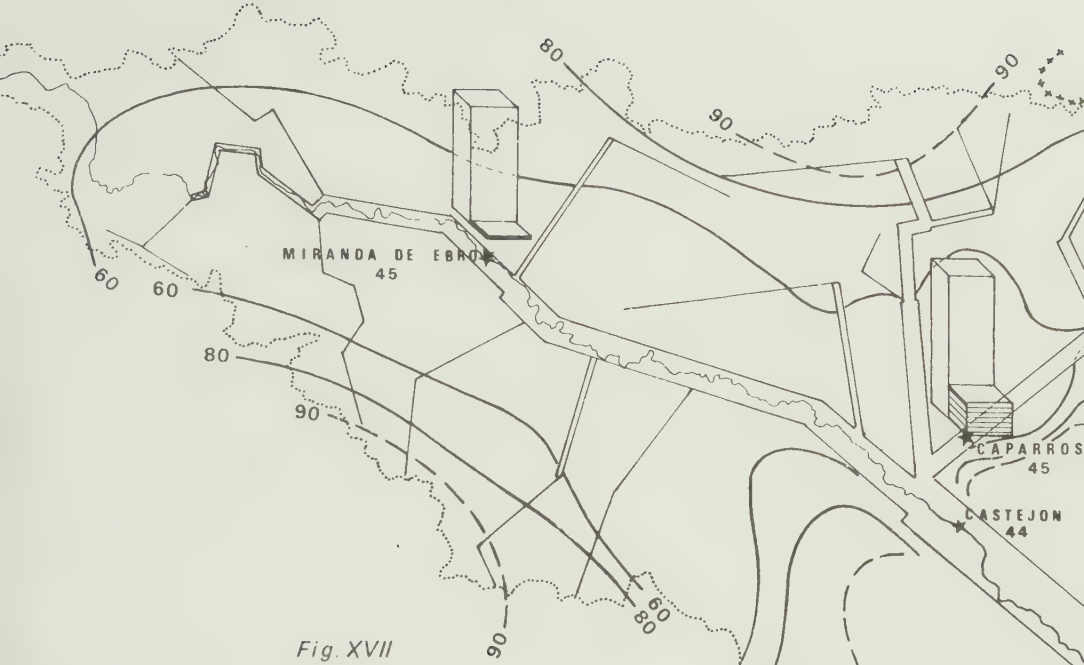


Pluvial méditerranéen à 2 maxima Nouv. et Ms.

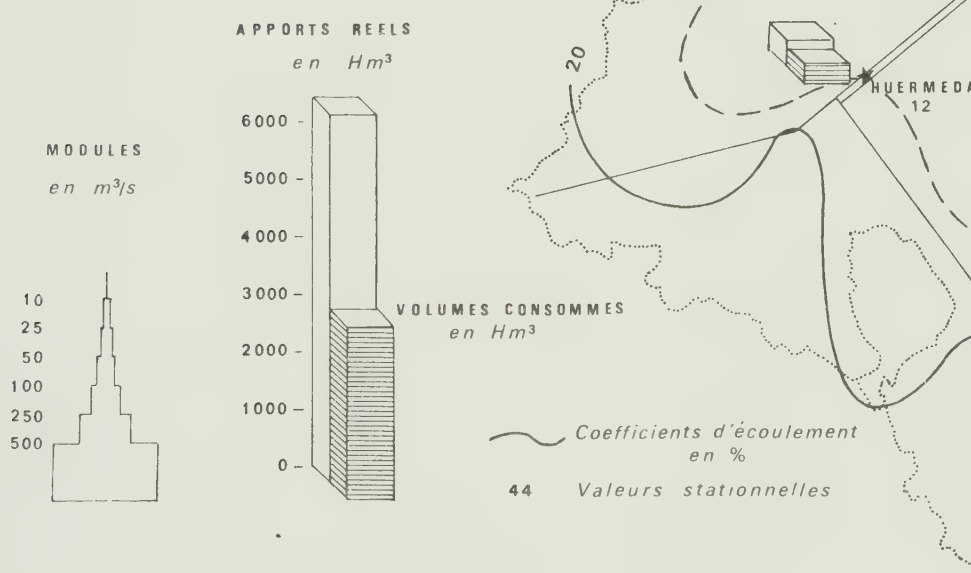
Pluvial " 3 " D. Ms. et Mai.

Pluvial " à légère influence nivale.





# BILAN HYDROLOGIQUE GENERAL





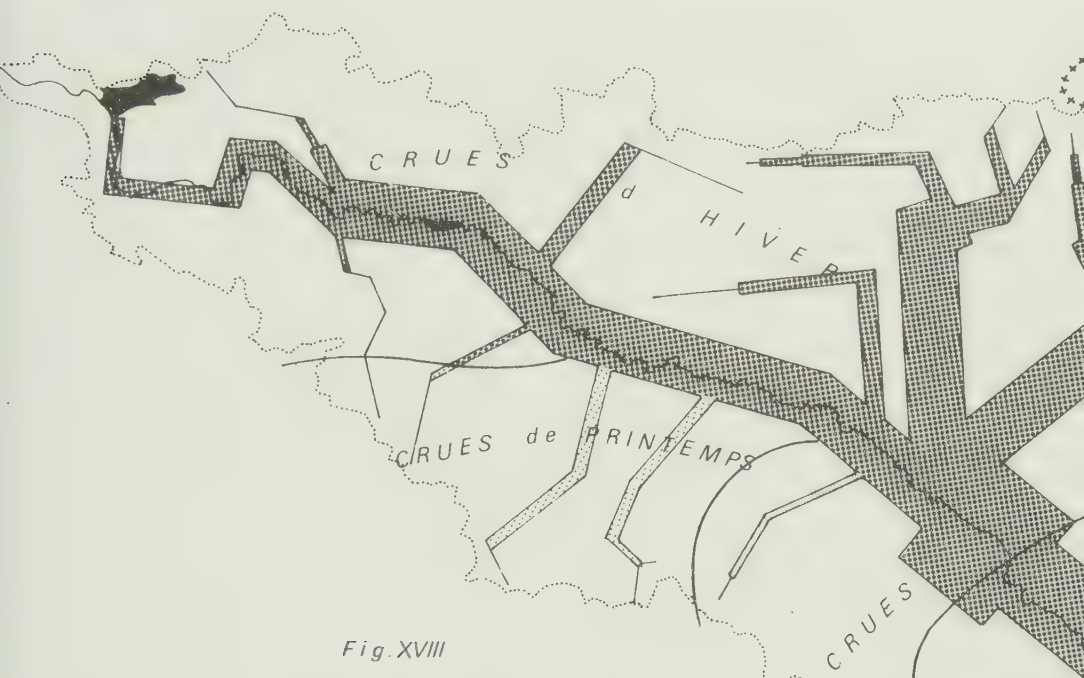


Fig. XVIII

# CARTE DE LA CRUE MAXIMALE ANNUELLE DE FREQUENCE 10 %

PUISSANCE  
en  $m^3/s$

EPOQUE DES CRUES



25  $m^3/s$   
50  
100  
250  
500  
1000  
2000  
3500



Crues d'hiver



.. de printemps



.. d'été



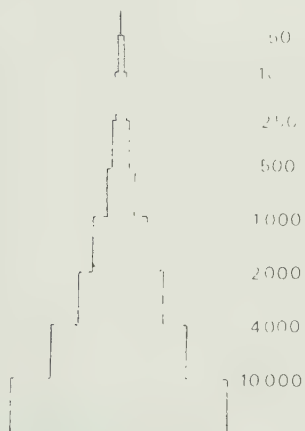
.. d'automne



CARTE DE LA CRUE MAXIMALE ENREGISTREE  
DANS LE BASSIN DE L'EBRE

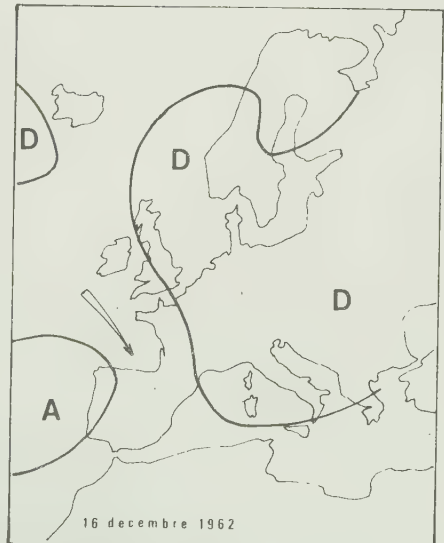
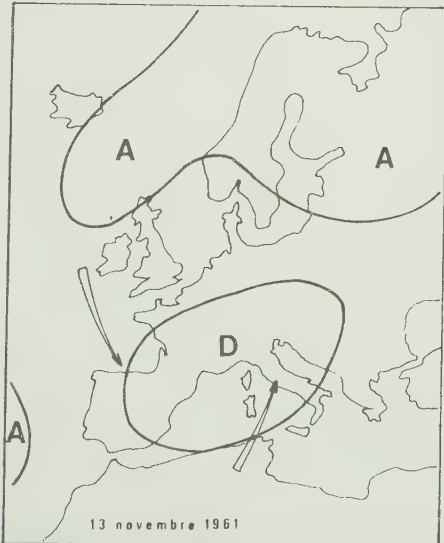
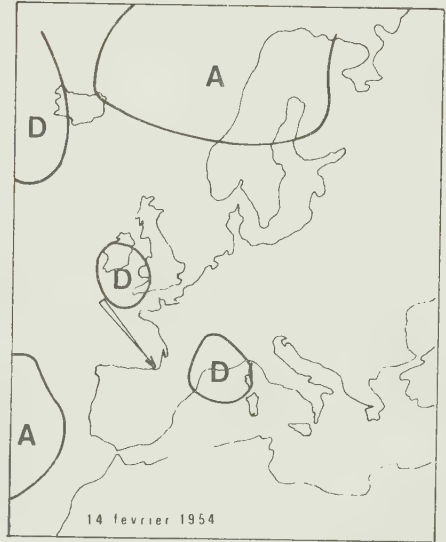
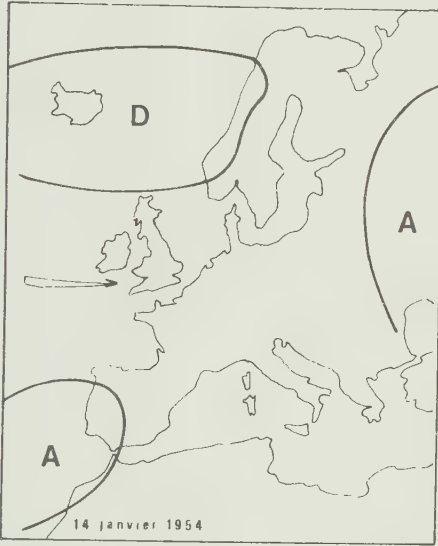
*Depuis 1914*

PUISSANCE  
en m<sup>3</sup>/s

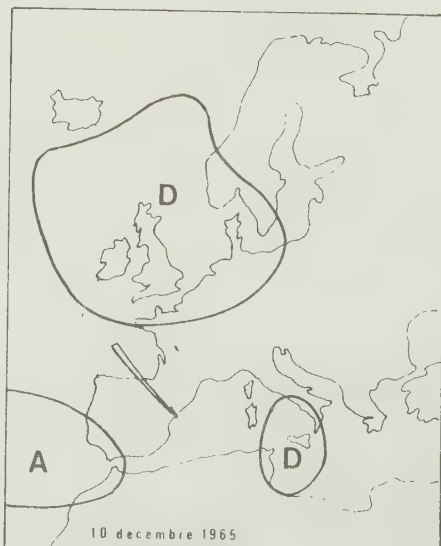
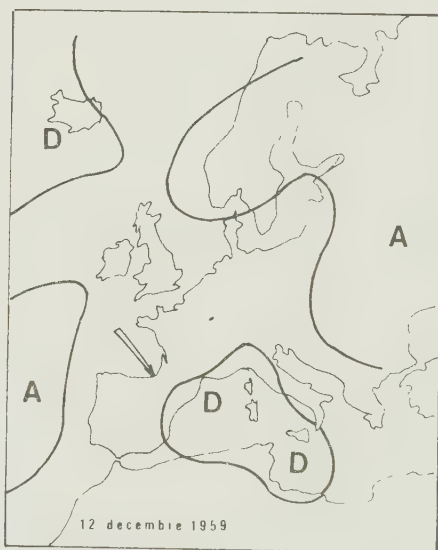
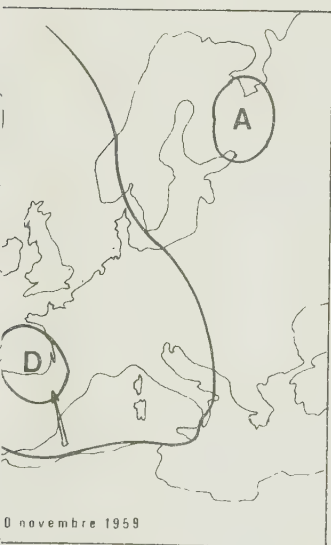




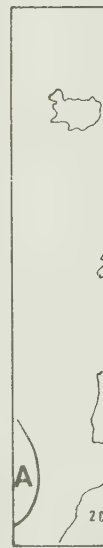
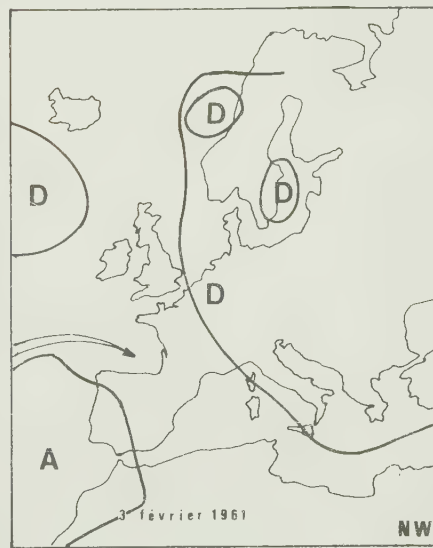
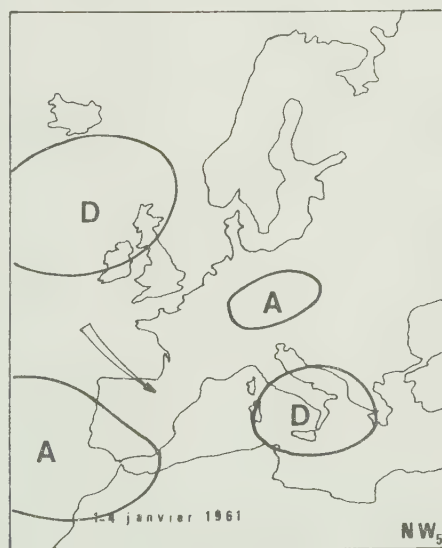
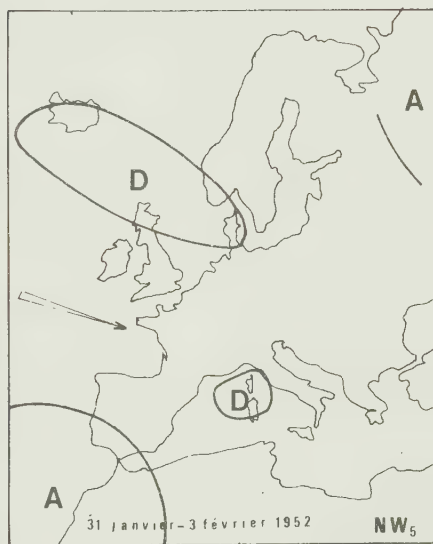
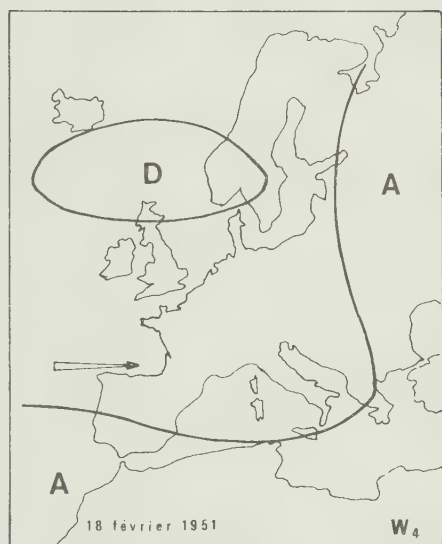
CRUES CANTABRIQUES



# S CRUES



CRUES PYRENEO-CANTABRIQUES



# CRUES

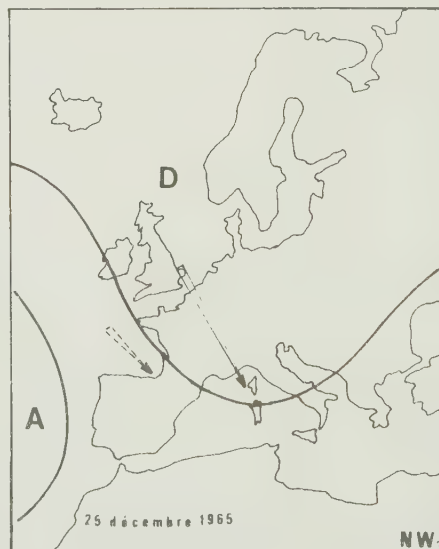
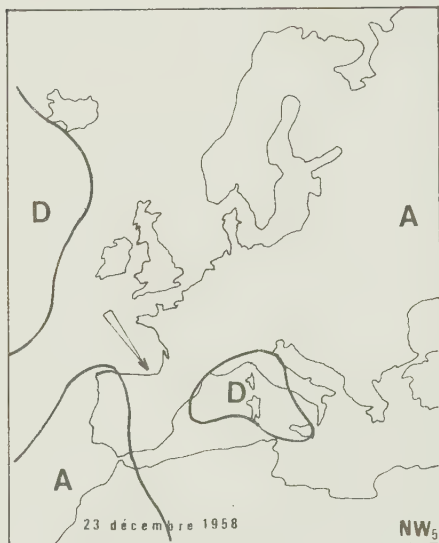
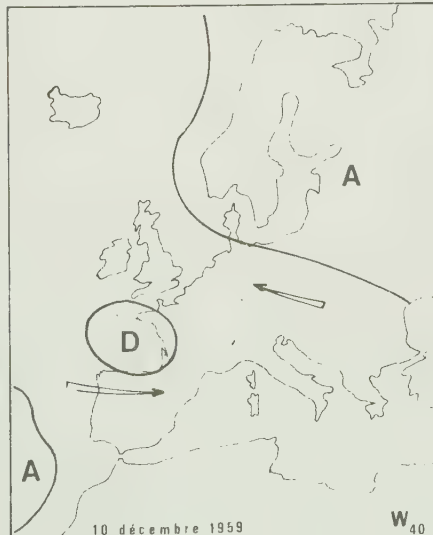
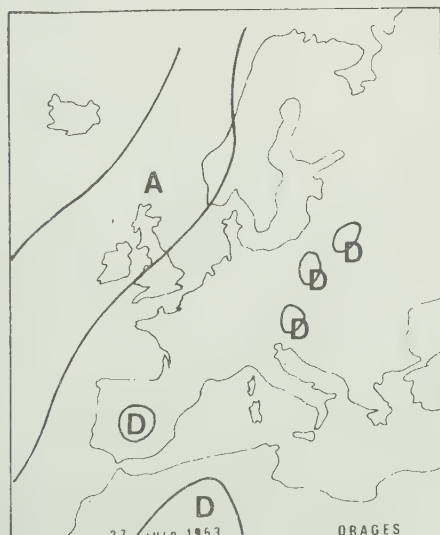
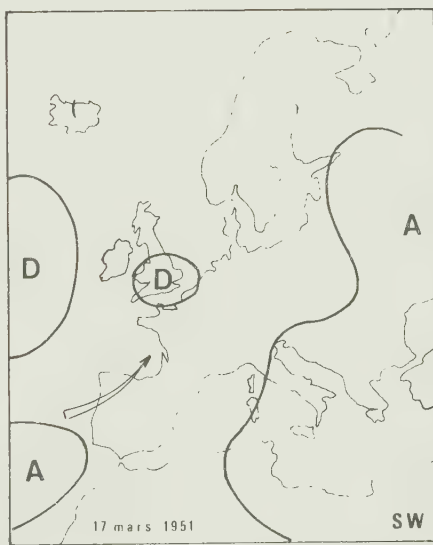
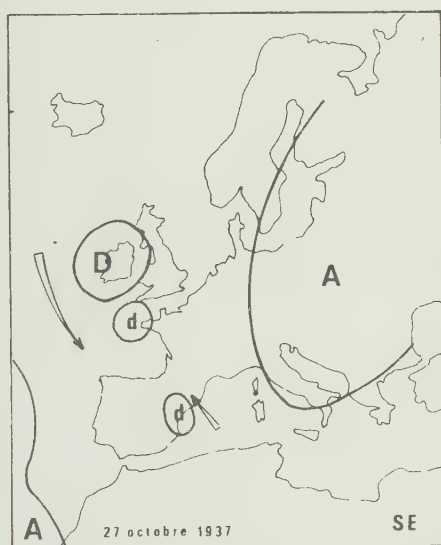


Fig XXII : ORIGINE METEOROLOGIQUE DE

CRUES PYRENEENNES



CI

# S CRUES

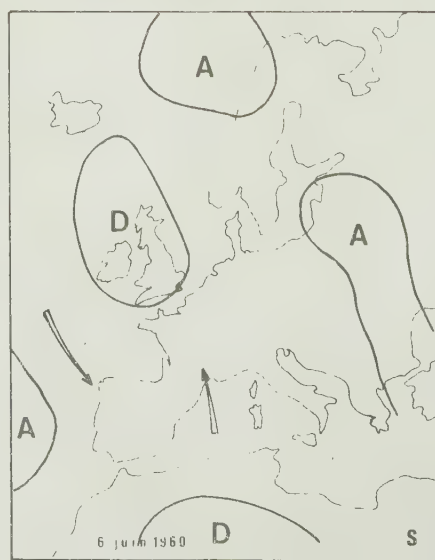
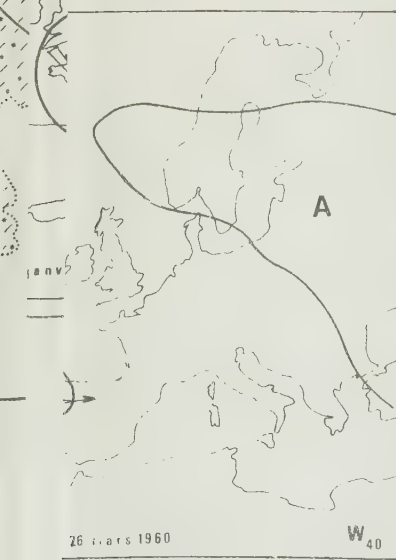
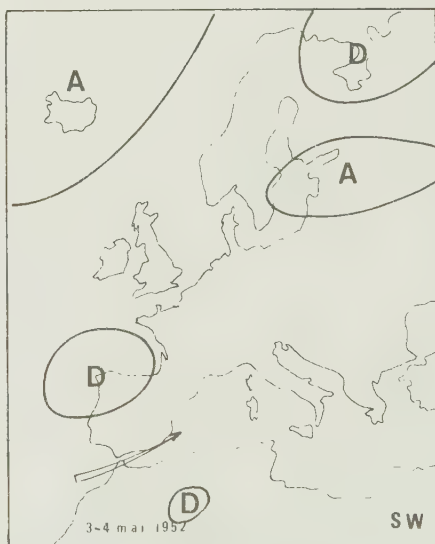
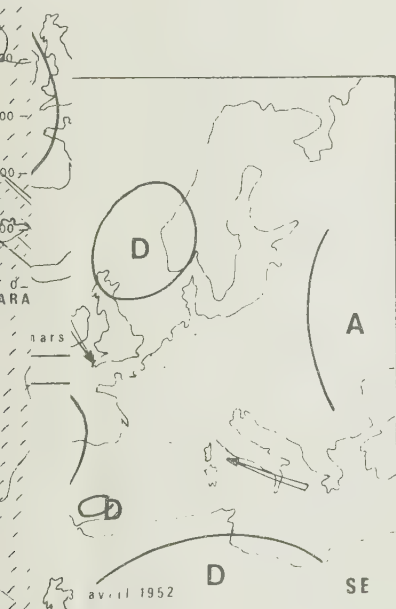
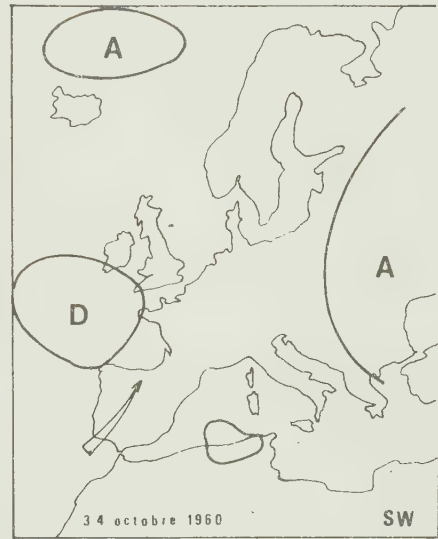
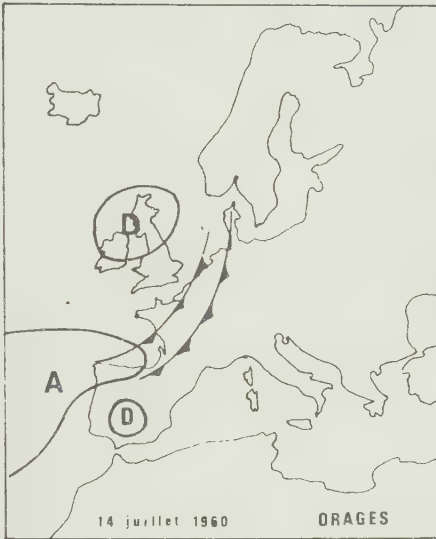


Fig. XXII: ORIGINE METEOROLOGIQUE D

CRUES PYRENEENNES



# IS CRUES

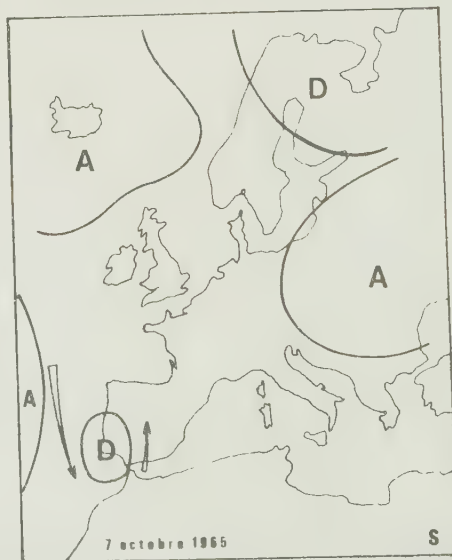
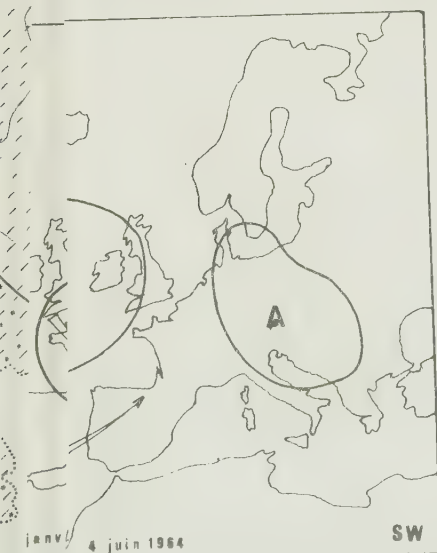
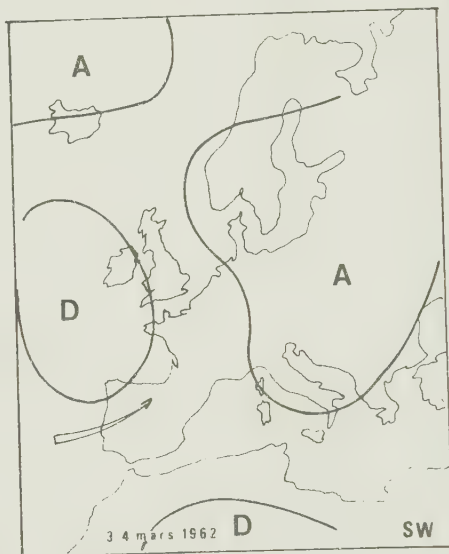
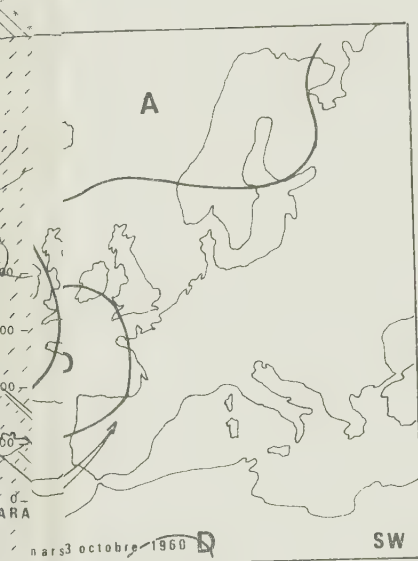
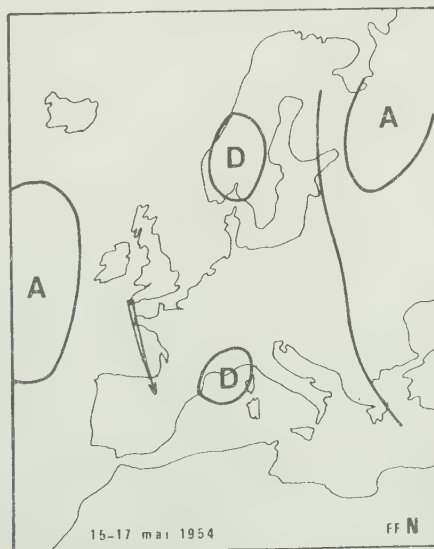
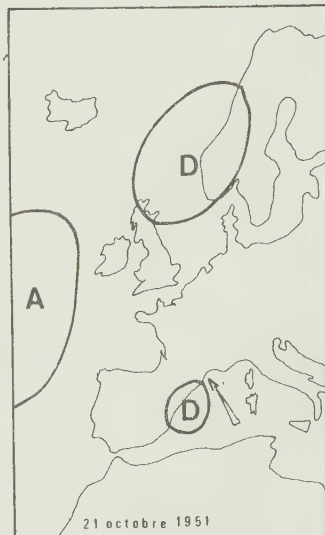
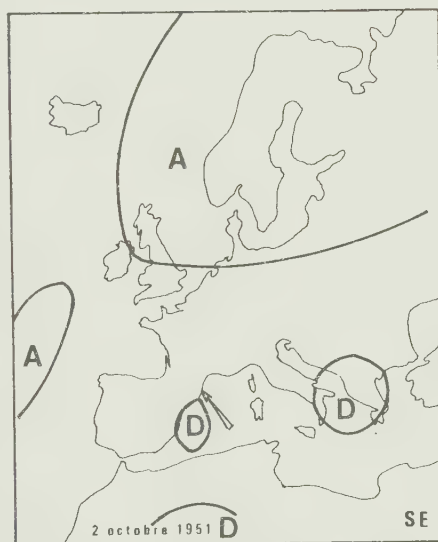


Fig XXIII : ORIGINE METEOROLOGIQUE

CRUES IBERIQUES





# DES CRUES

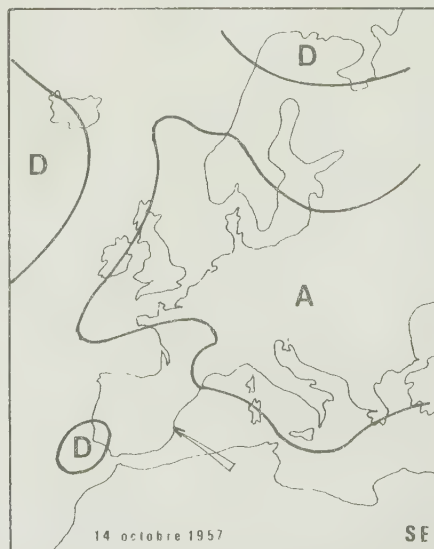
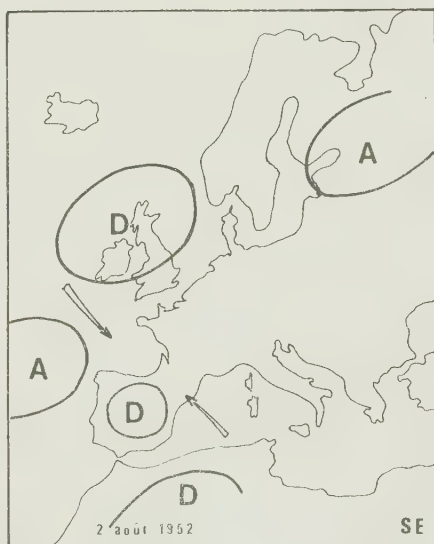
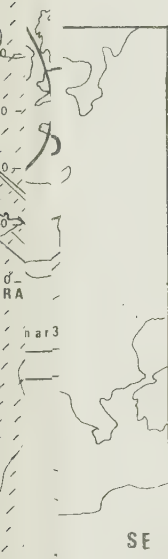


Fig XXIV · ORIGINE METEOROLOGIQUE DES C

CRUES GENERALES



# RUES

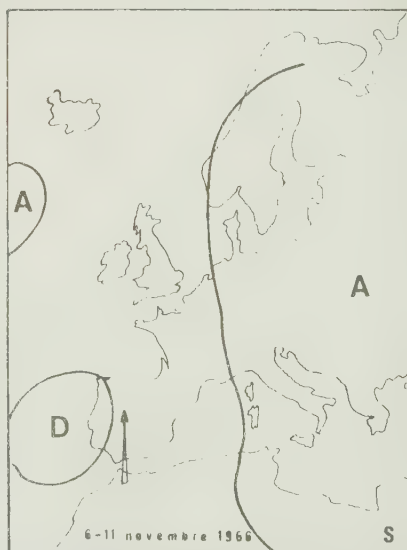
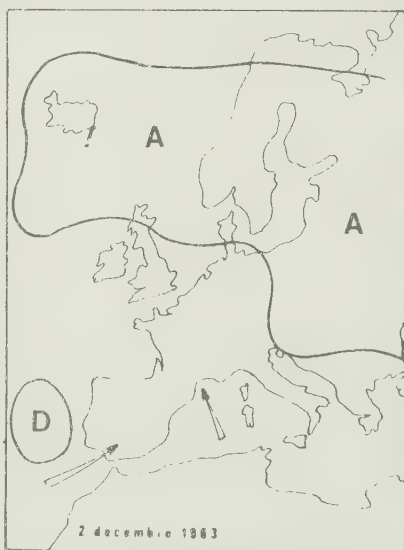
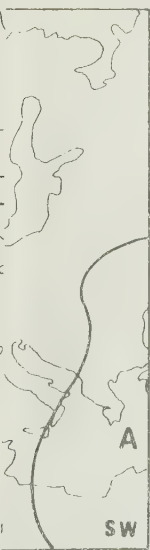
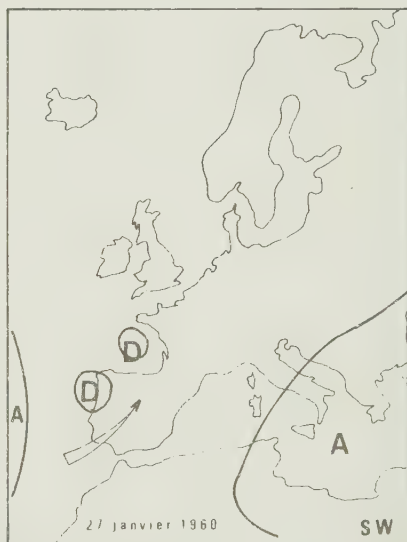
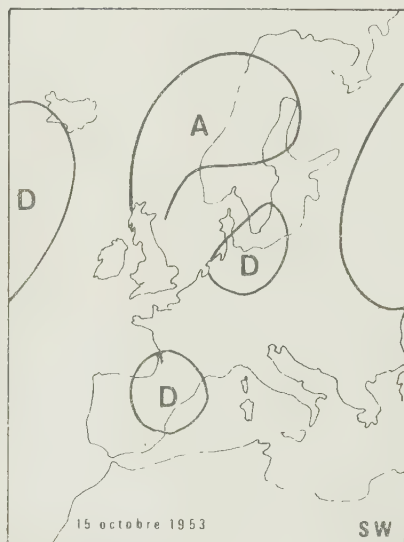
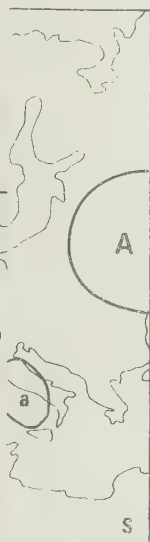
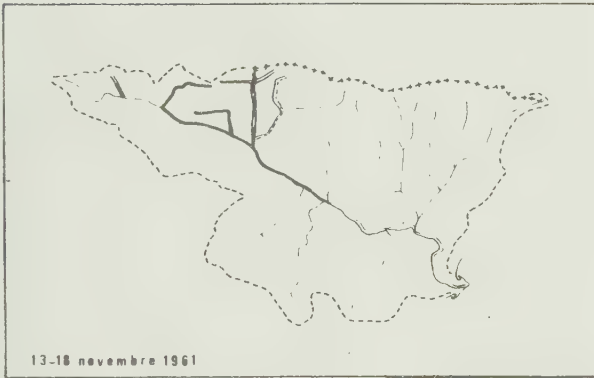
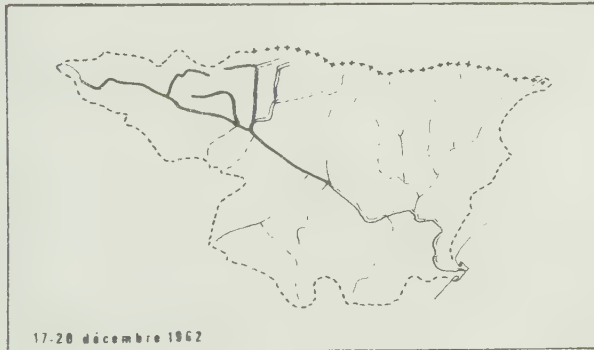


Fig. XXV et XXVI: ORIGINE GEOGRAPHIQUE  
DE L'EBRE

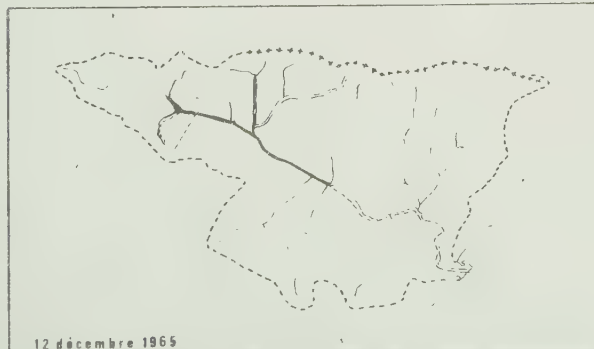


▲ CRUES CANTABRIQUES



Légende

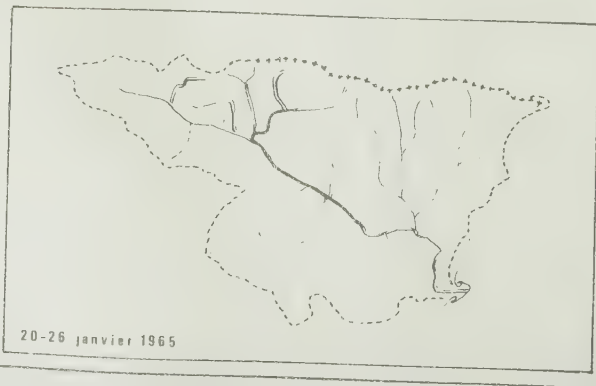
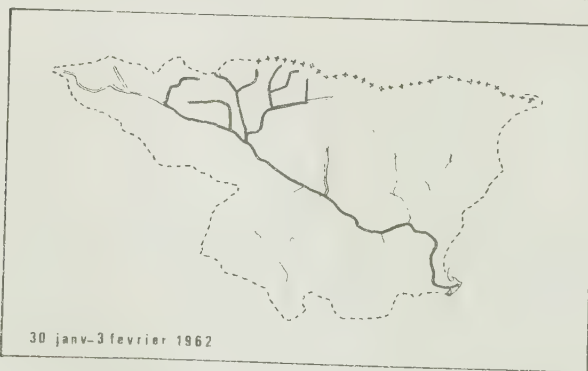
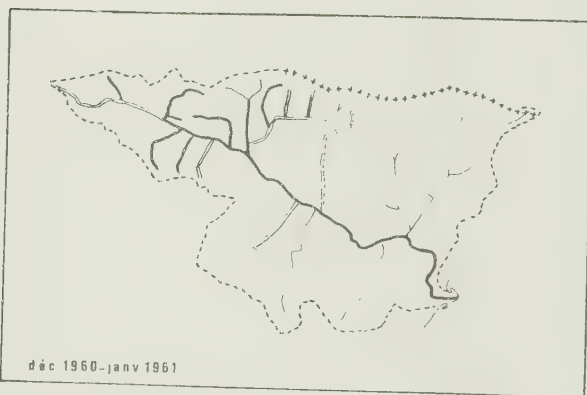
- Crue extraordinaire
- == " ordinaire
- == " secondaire
- Rivières à peine touchées



CRUES PYRENEO-CANTABRIQUES

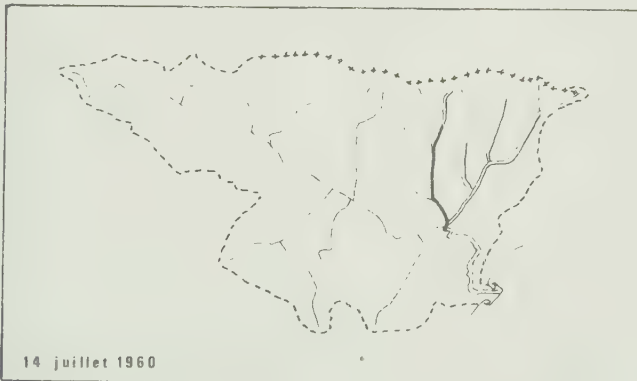
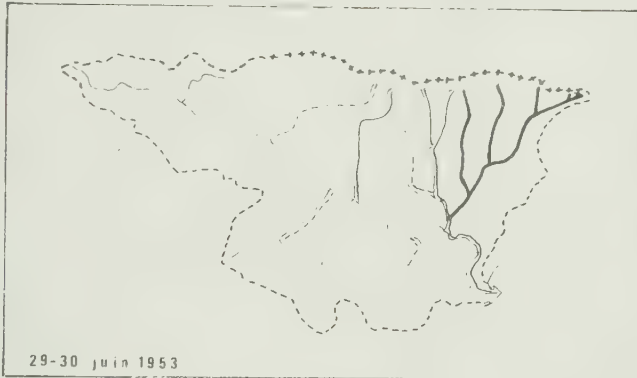
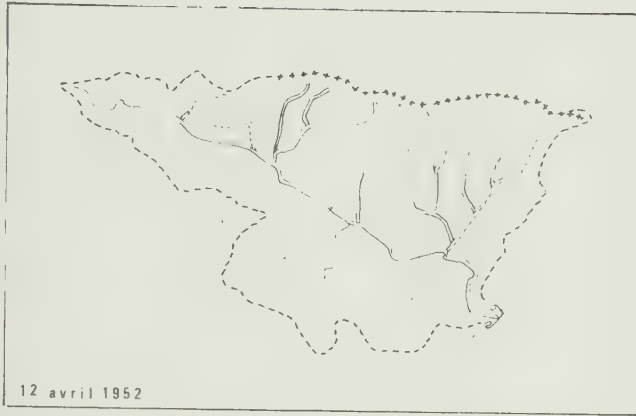
R

# UE DES CRUES



NTABRIQUES V

CRUES PYRE



NEENNES



27 mars 1960



15-18 novembre 1963



4-5 juin 1964

# CRUES GENERALES

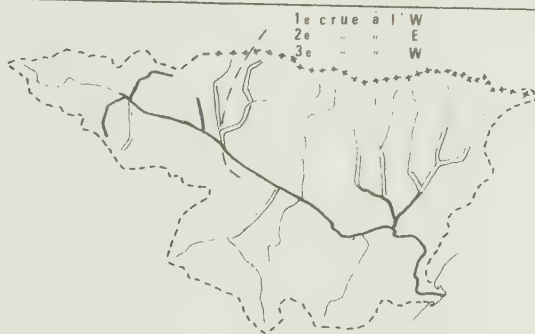
Fig. XXVIII et X



mar 1956



30 octobre 1960



décembre 1959



22 novembre 1961

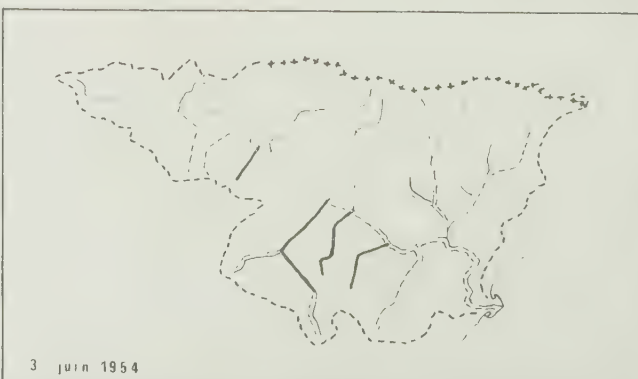
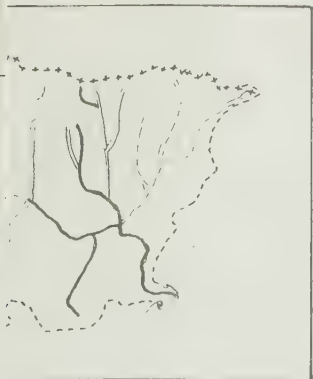
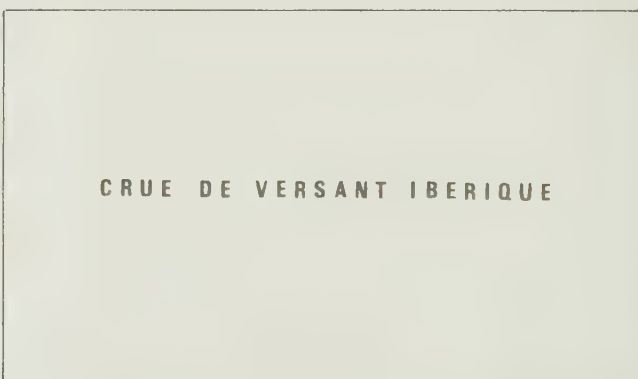
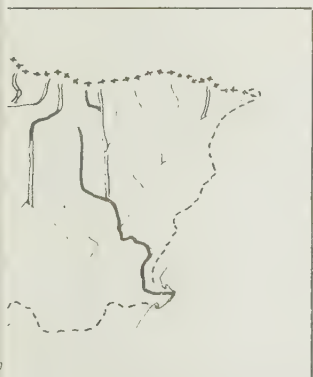
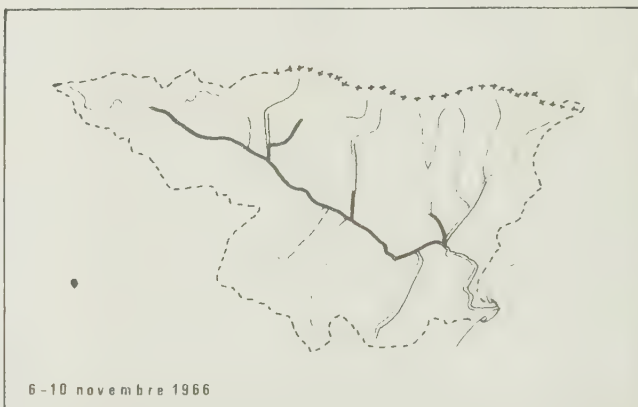


24-30 janvier 1960



30 nov 1 déc 1961

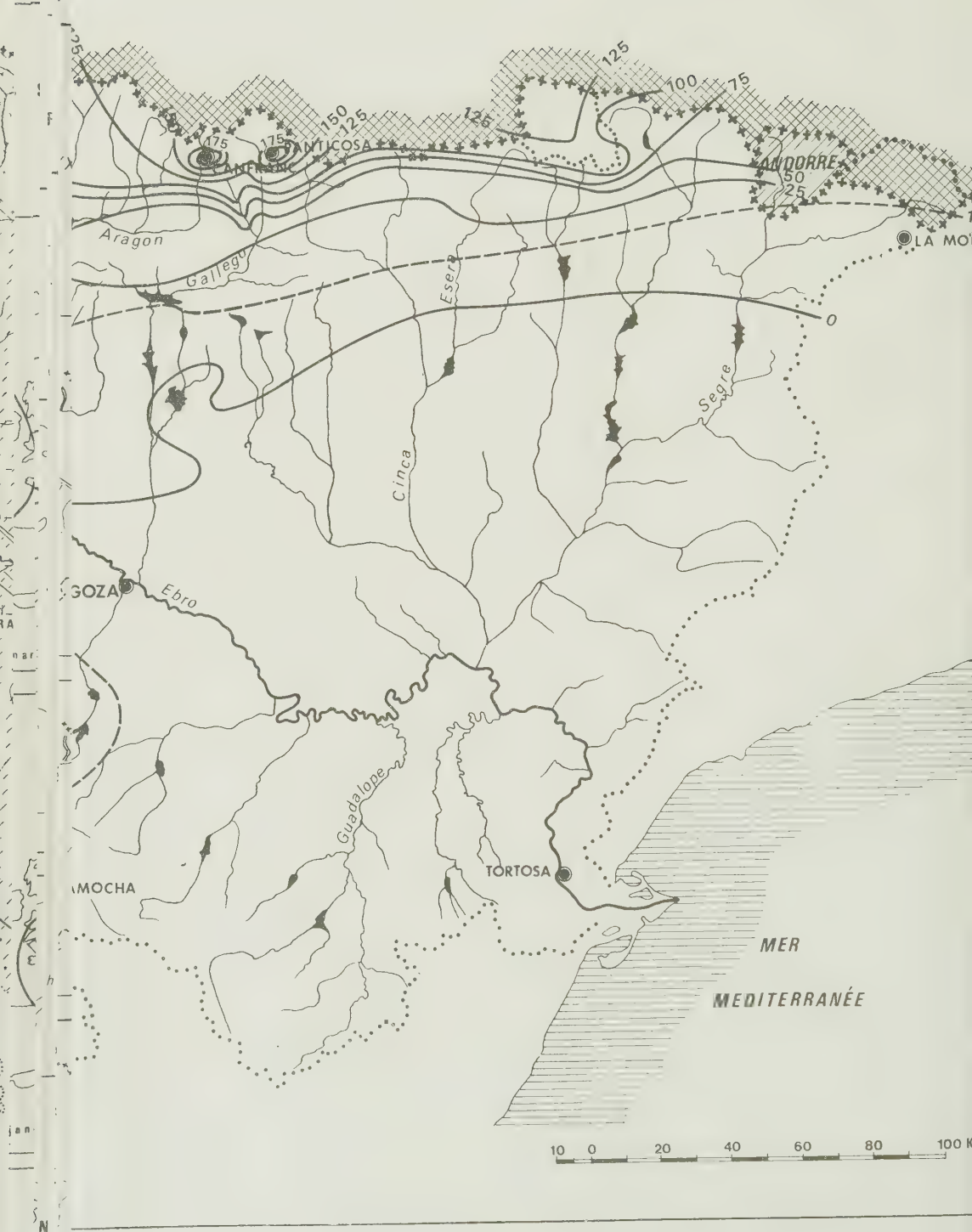
XIX: ORIGINE GEOGRAPHIQUE DES CRUES DE L'EBRE





CARTE DE LA PLUIE

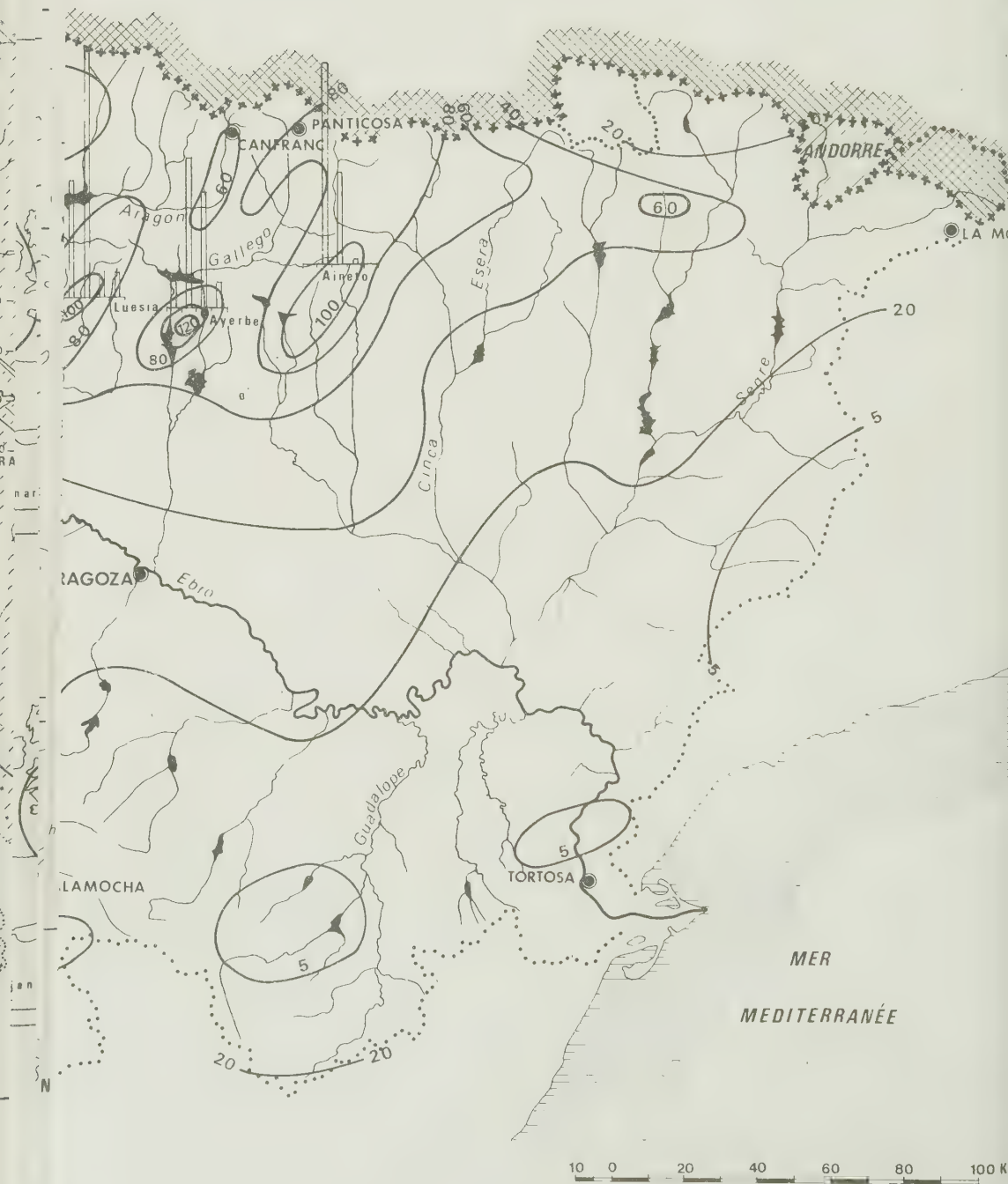
31 JANVIER AU 4 FEVRIER 1952





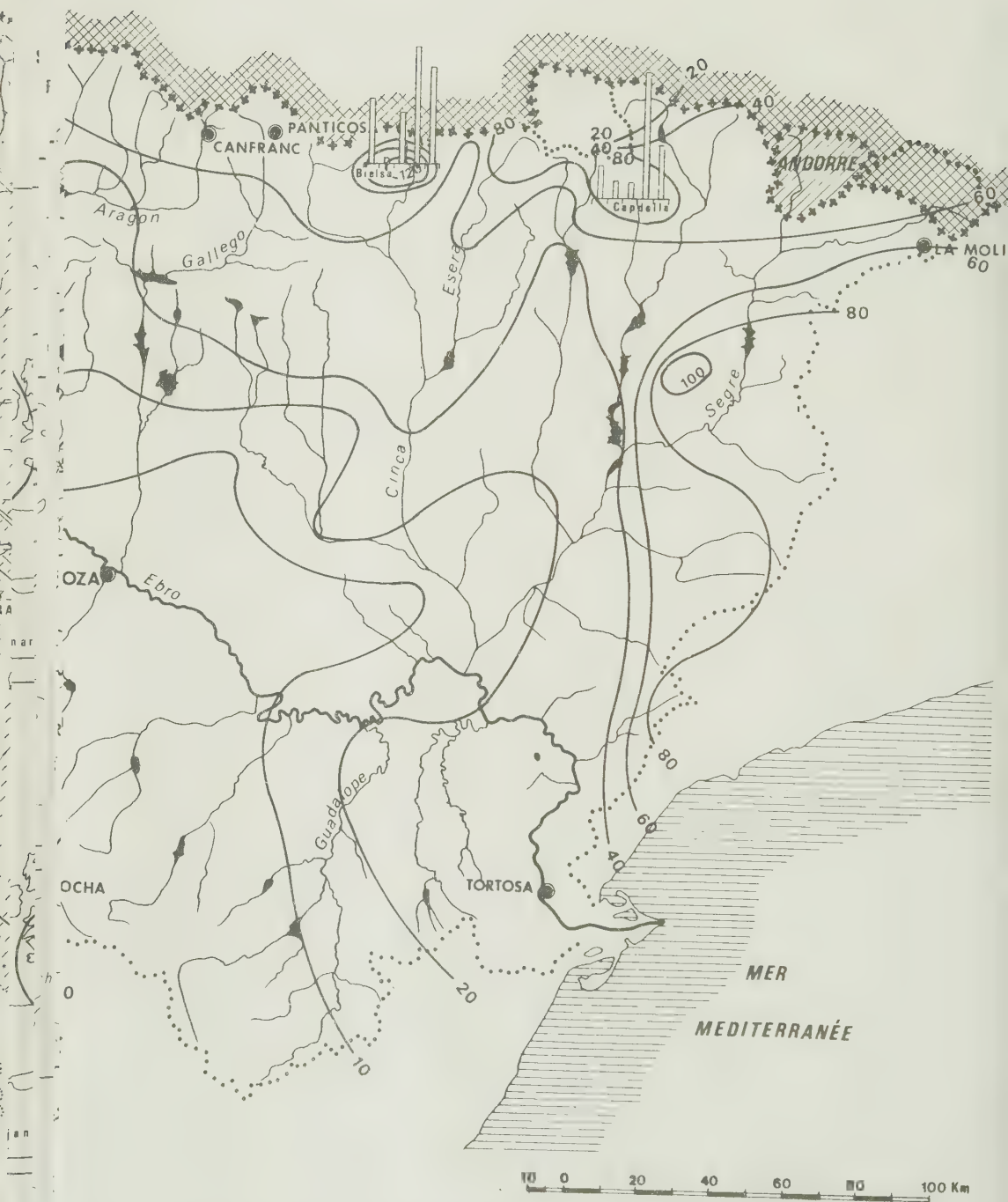
K1: CARTE DE LA PLUIE  
DU 11 AU 14 AVRIL 1952

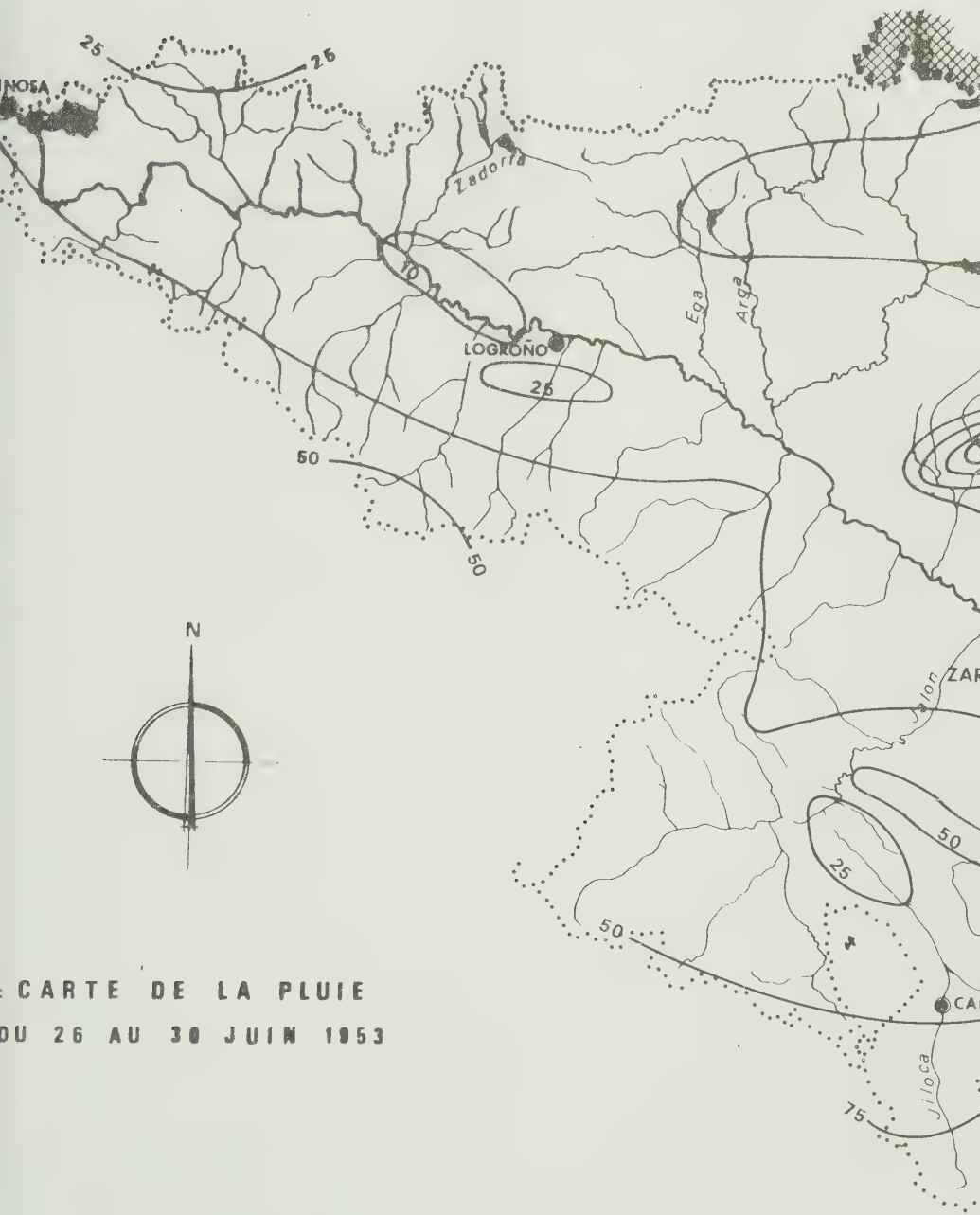
# F R A N C E





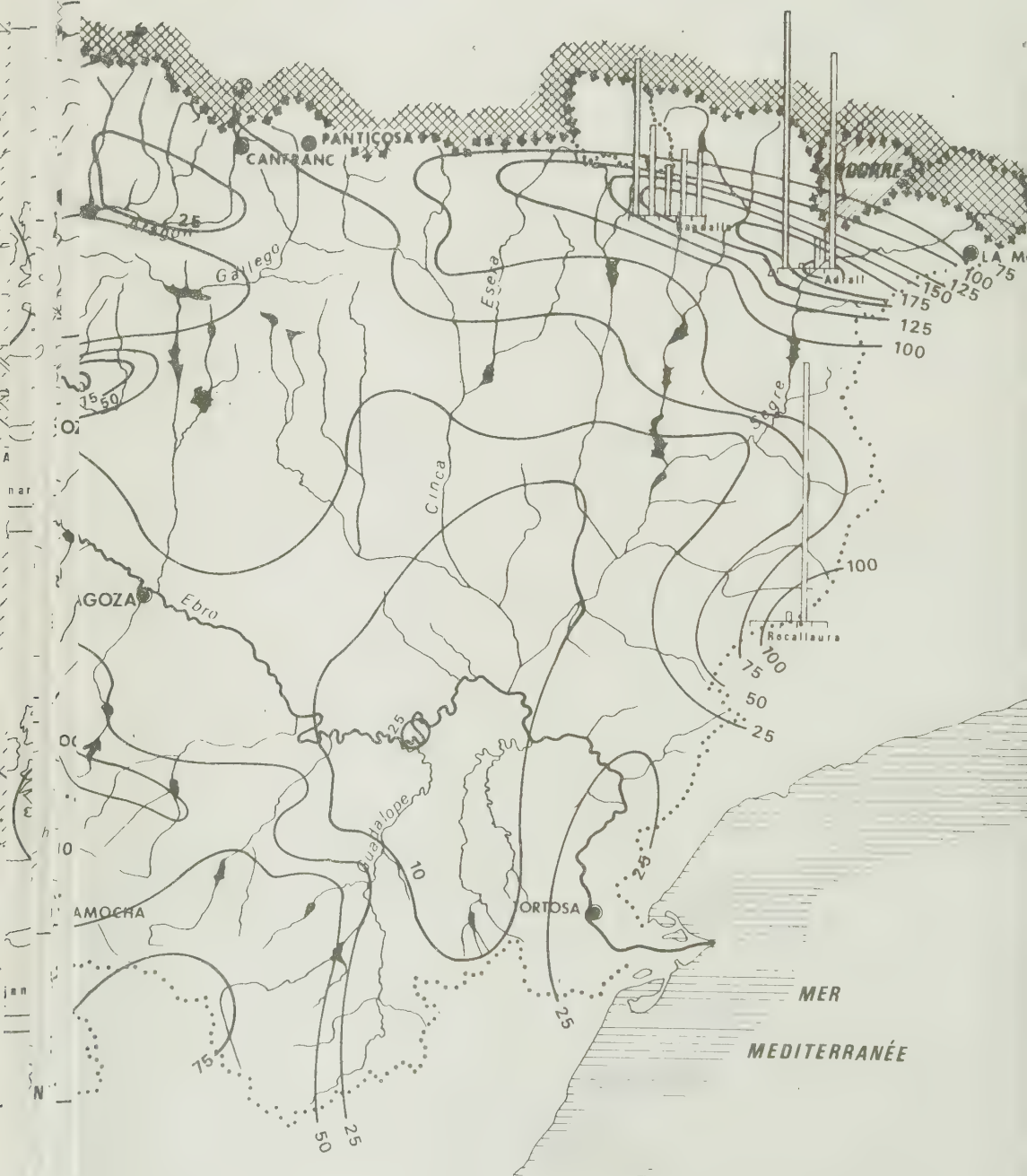
# F R A N C E





CARTE DE LA PLUIE  
DU 26 AU 30 JUIN 1953

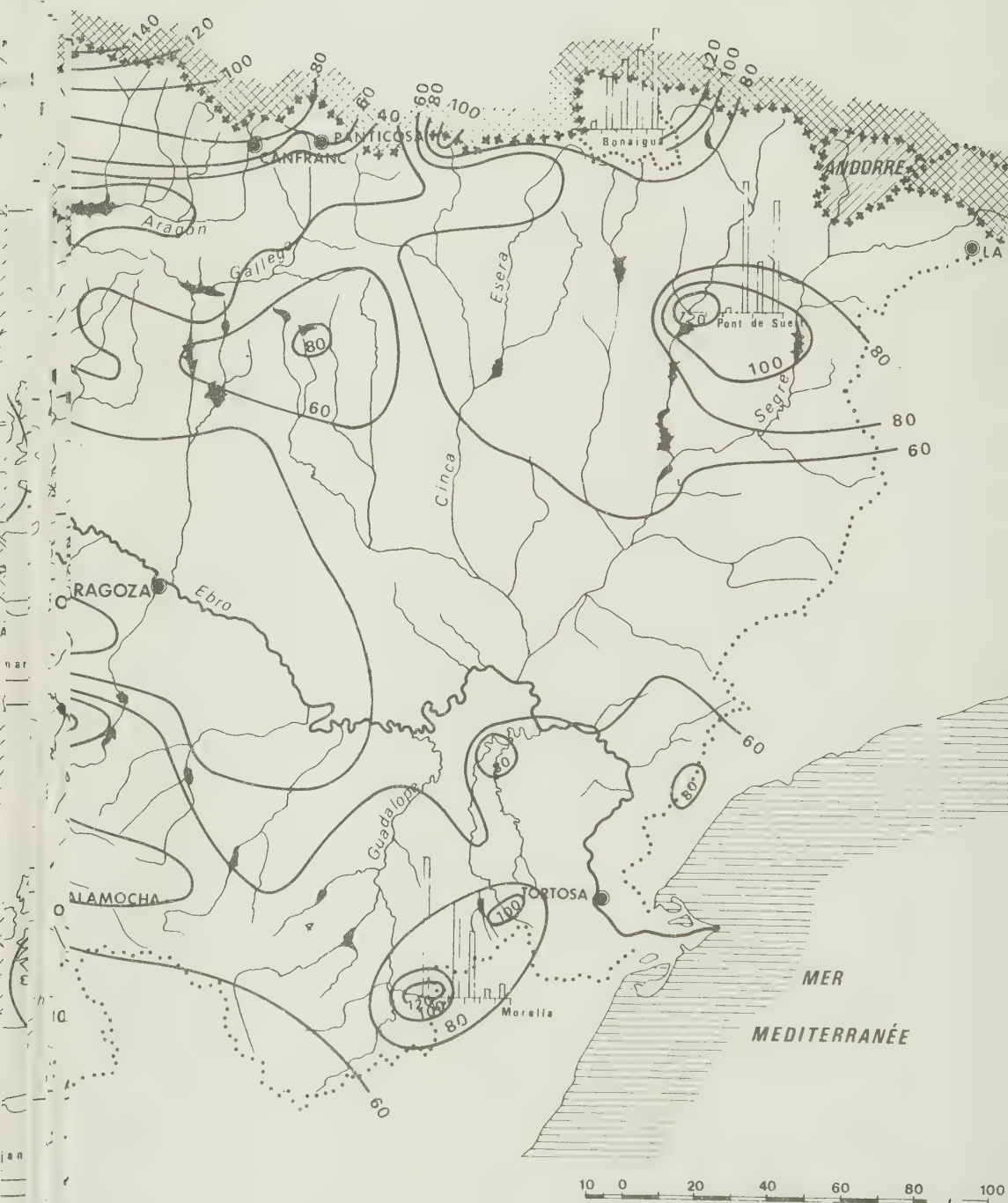
# F R A N C E

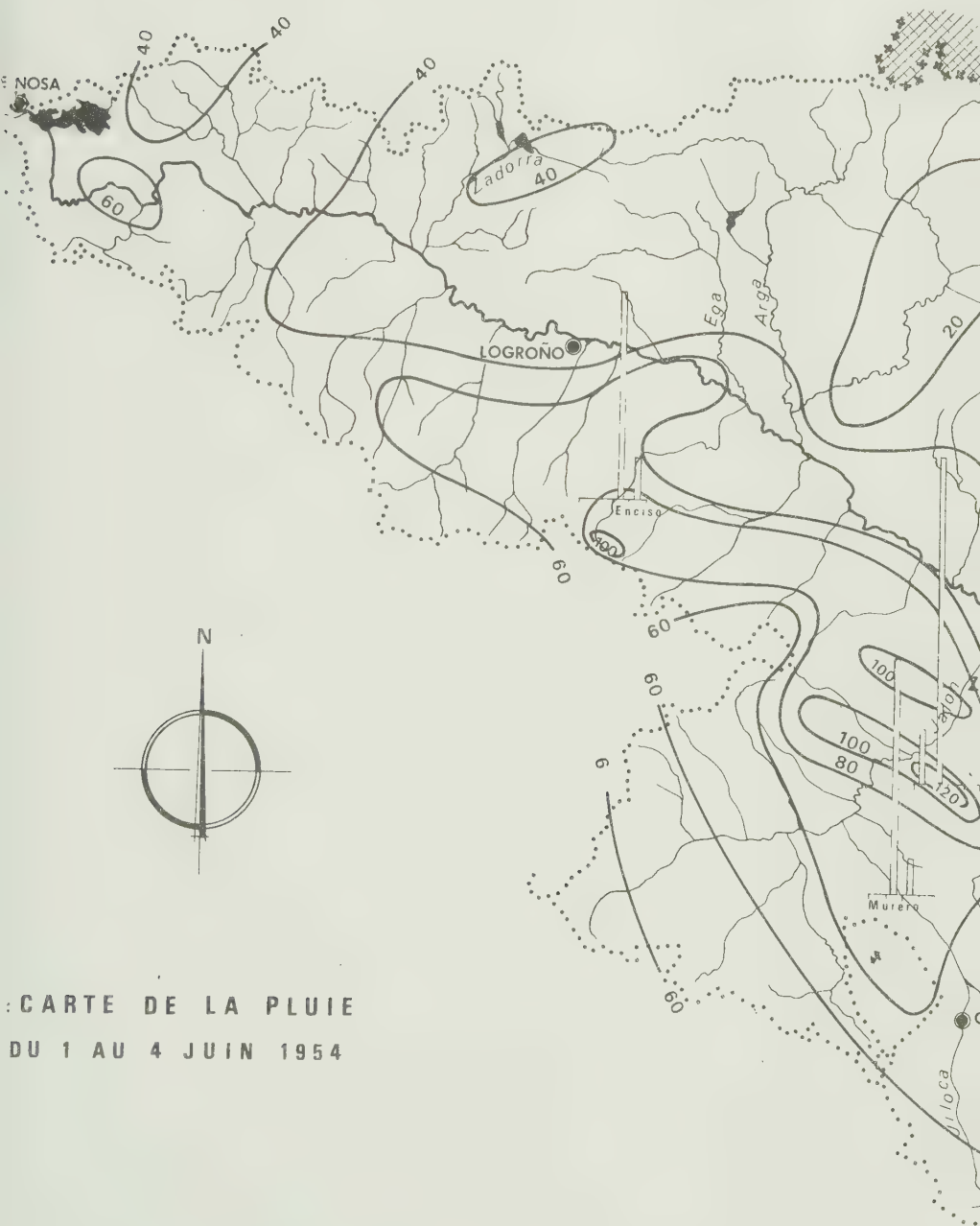


10 0 20 40 60 80 100 Km



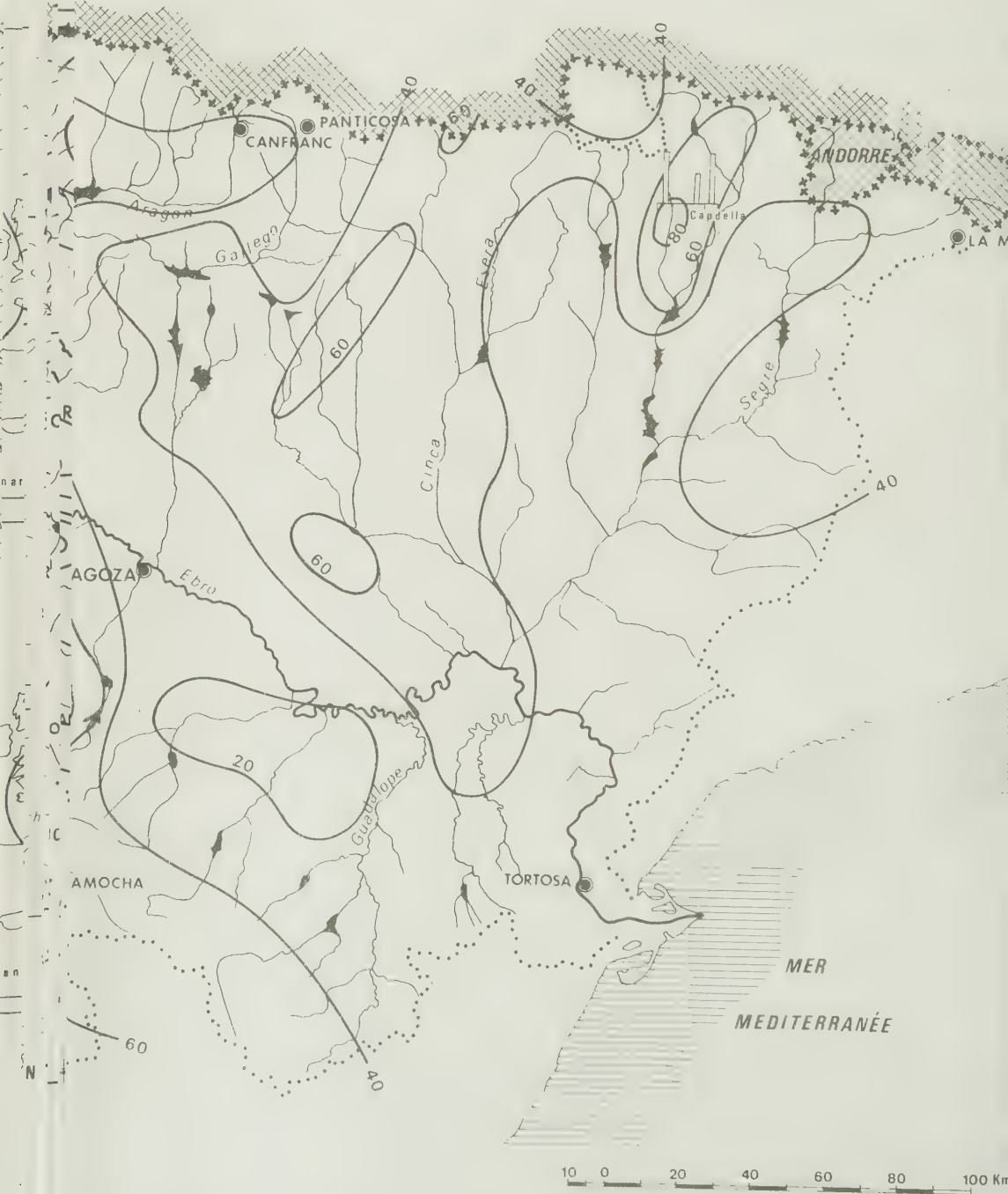
CARTE DE LA PLUIE  
J 13 AU 18 MAI 1954

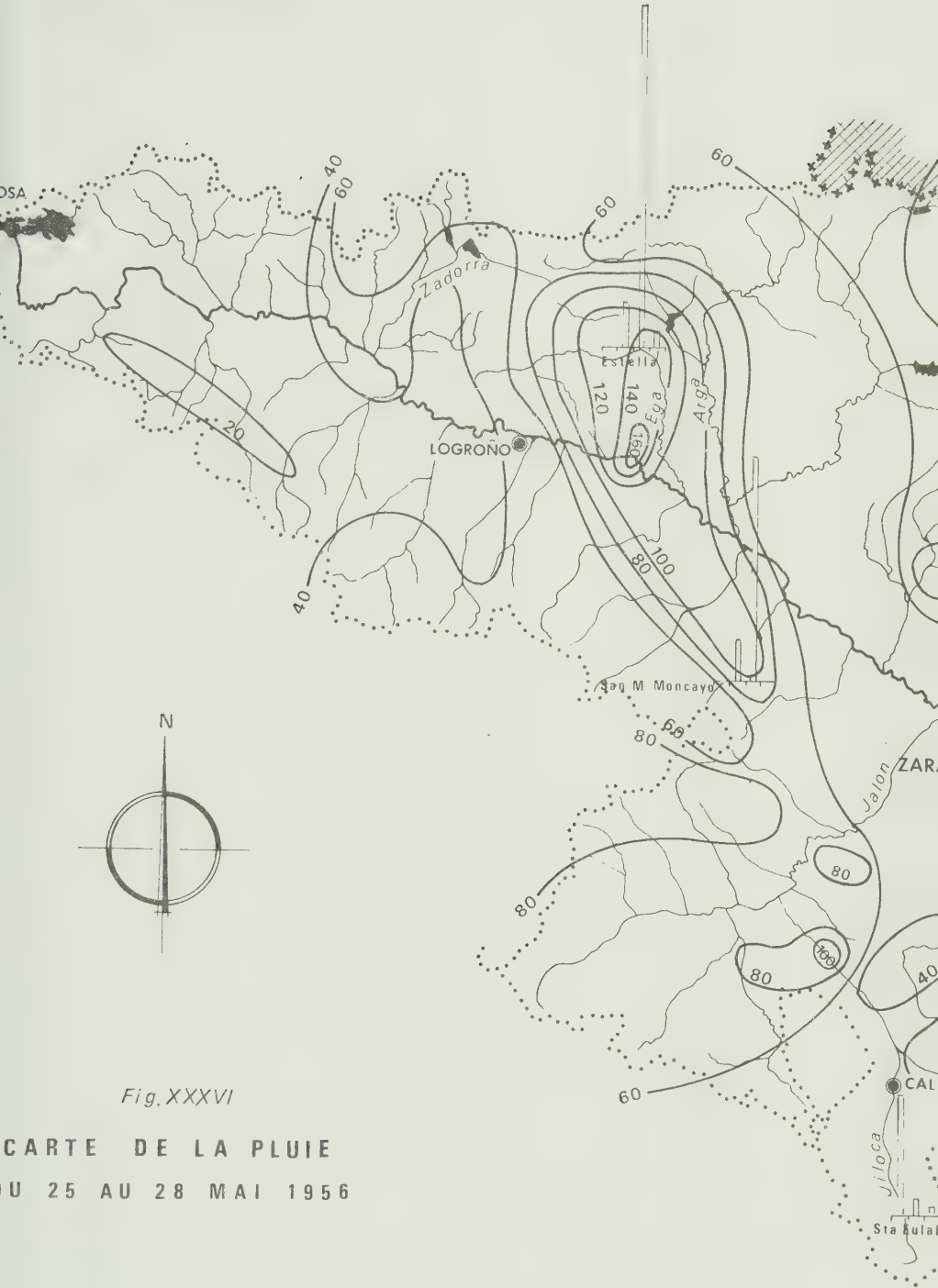


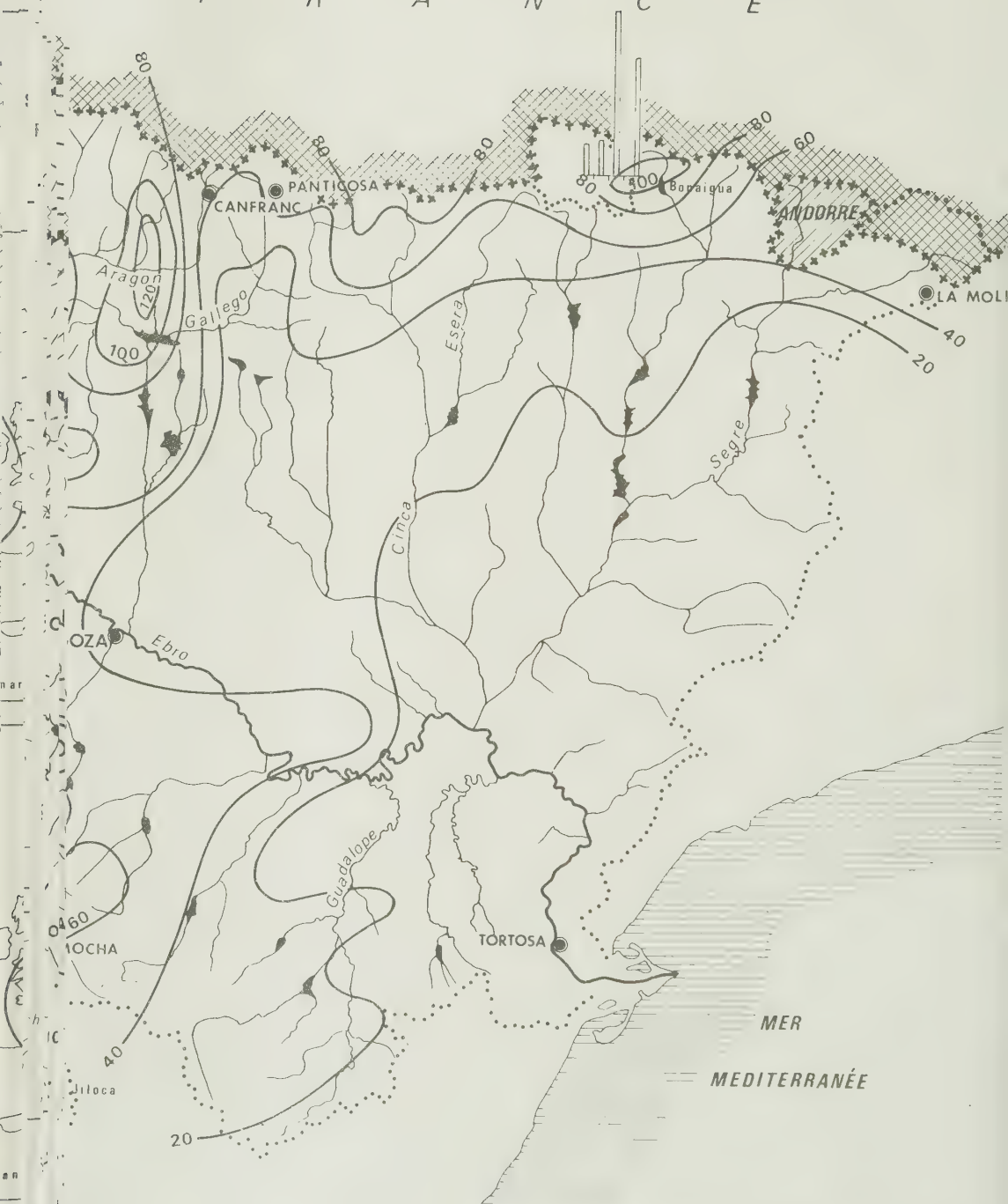


CARTE DE LA PLUIE  
DU 1 AU 4 JUIN 1954

F R A N C E







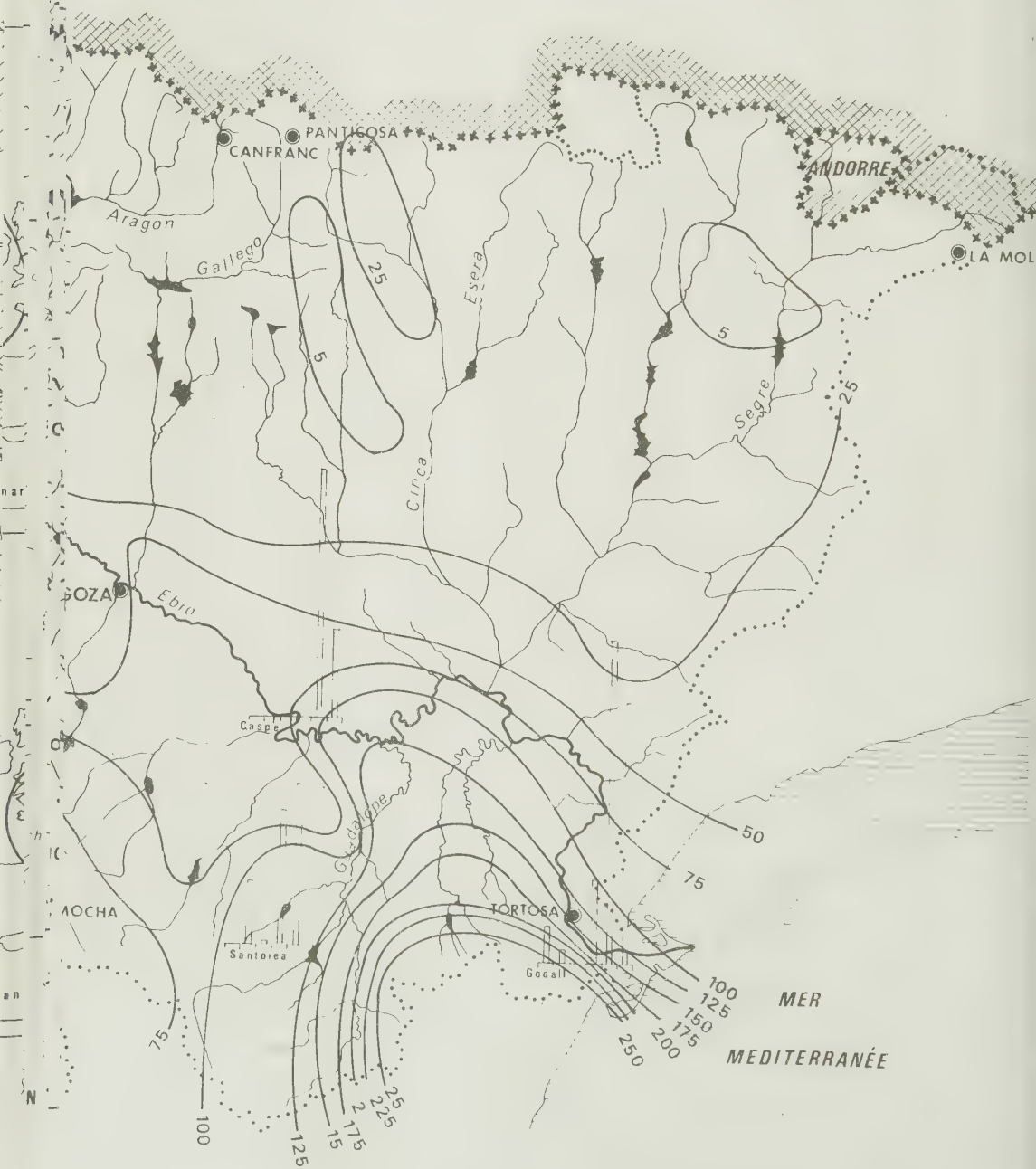
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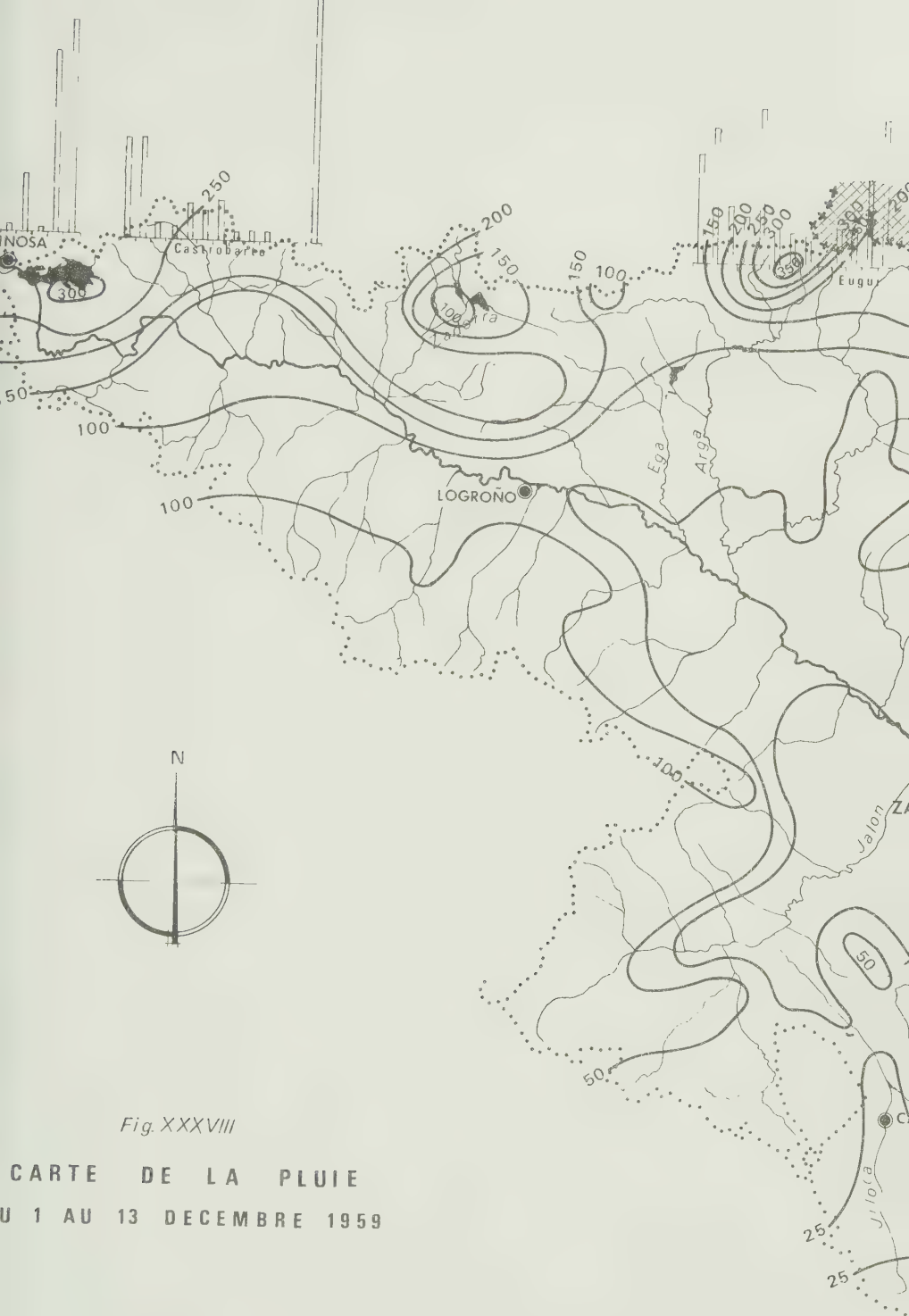
Fig. XXXVII

CARTE DE LA PLUIE  
10 AU 15 OCTOBRE 1957

# F R A N C E



10 0 20 40 60 80 100 Km



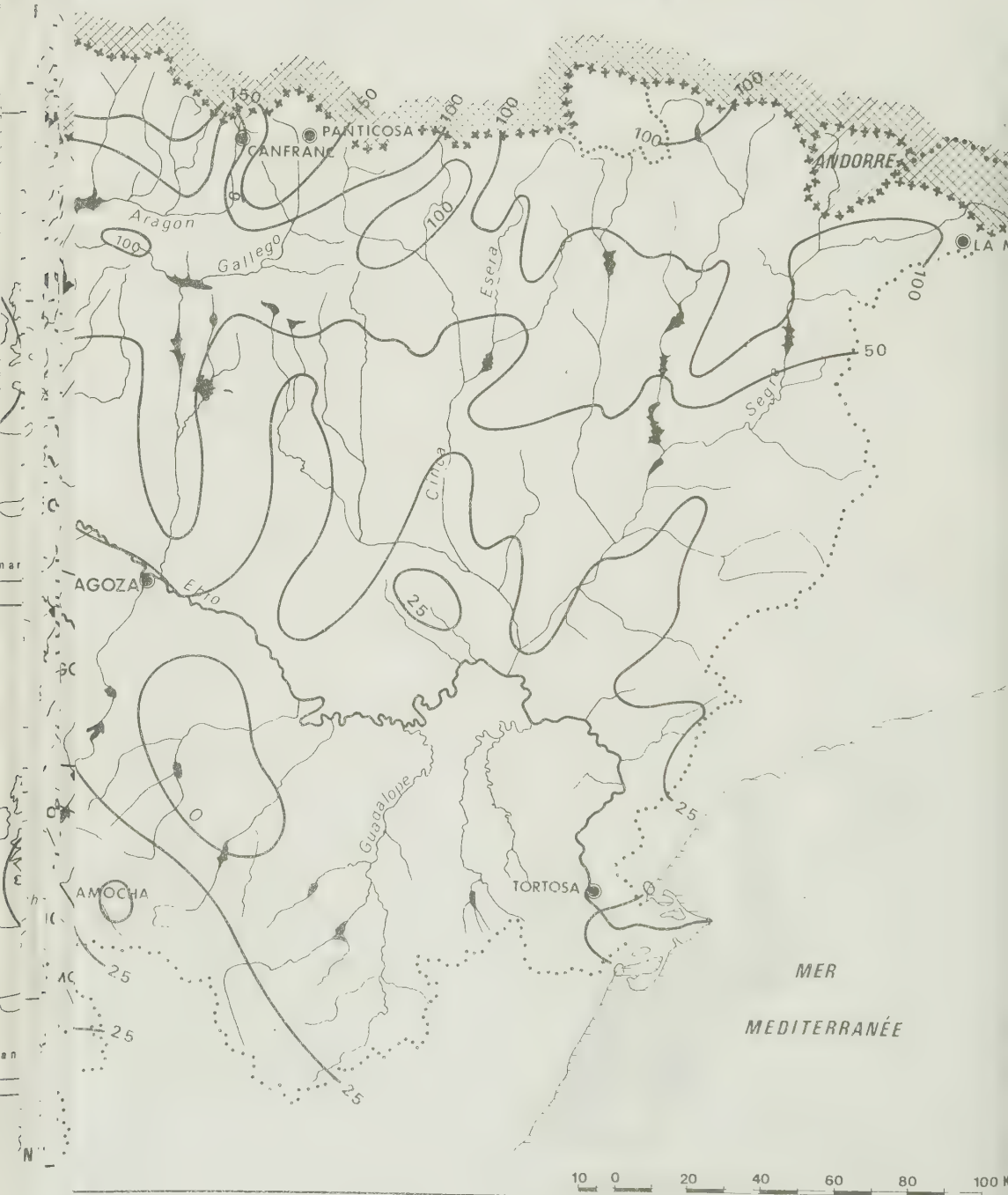




Fig. XXXIX

TE DE LA PLUIE  
4 AU 28 JANVIER 1960

F R A N C E

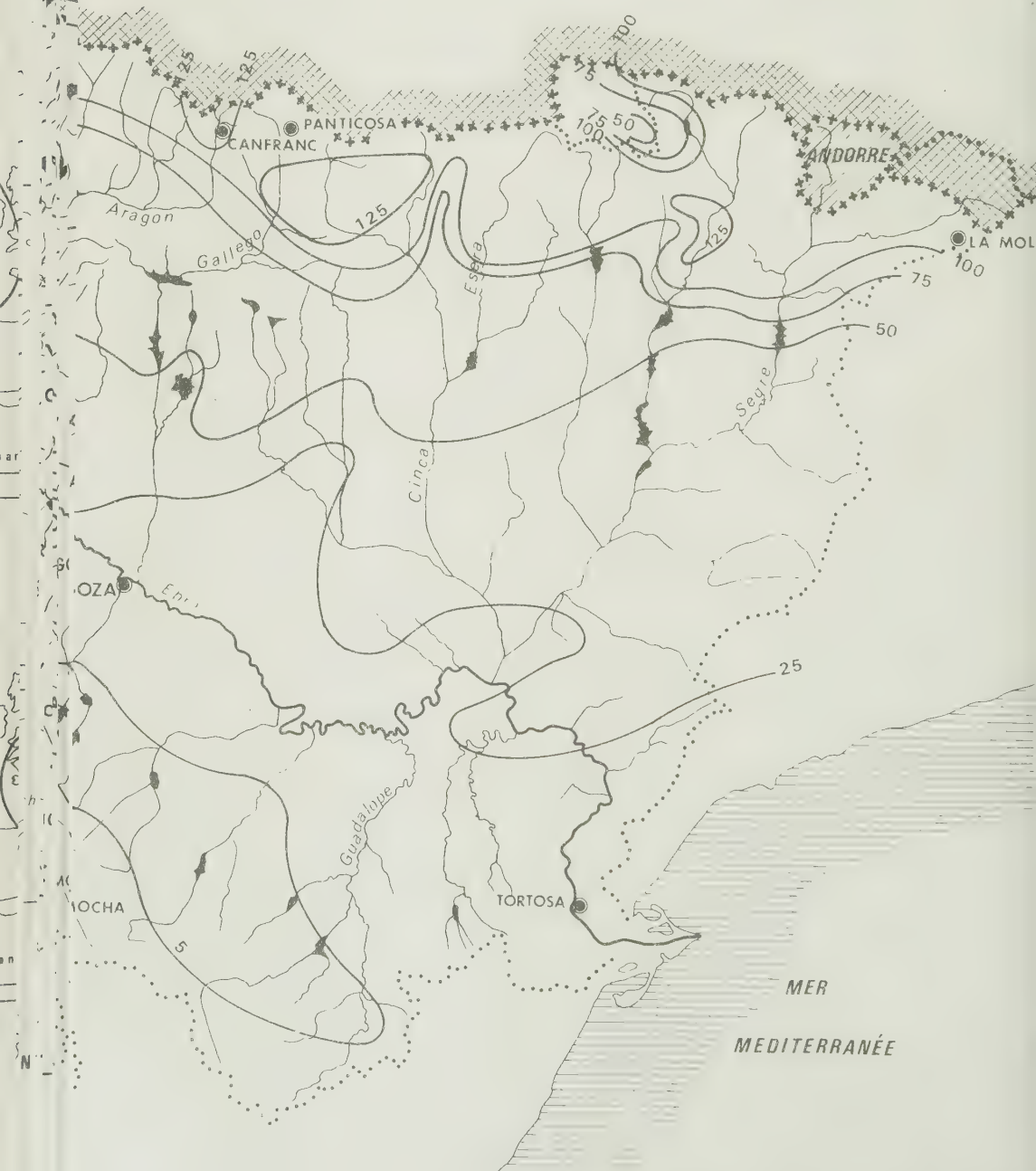
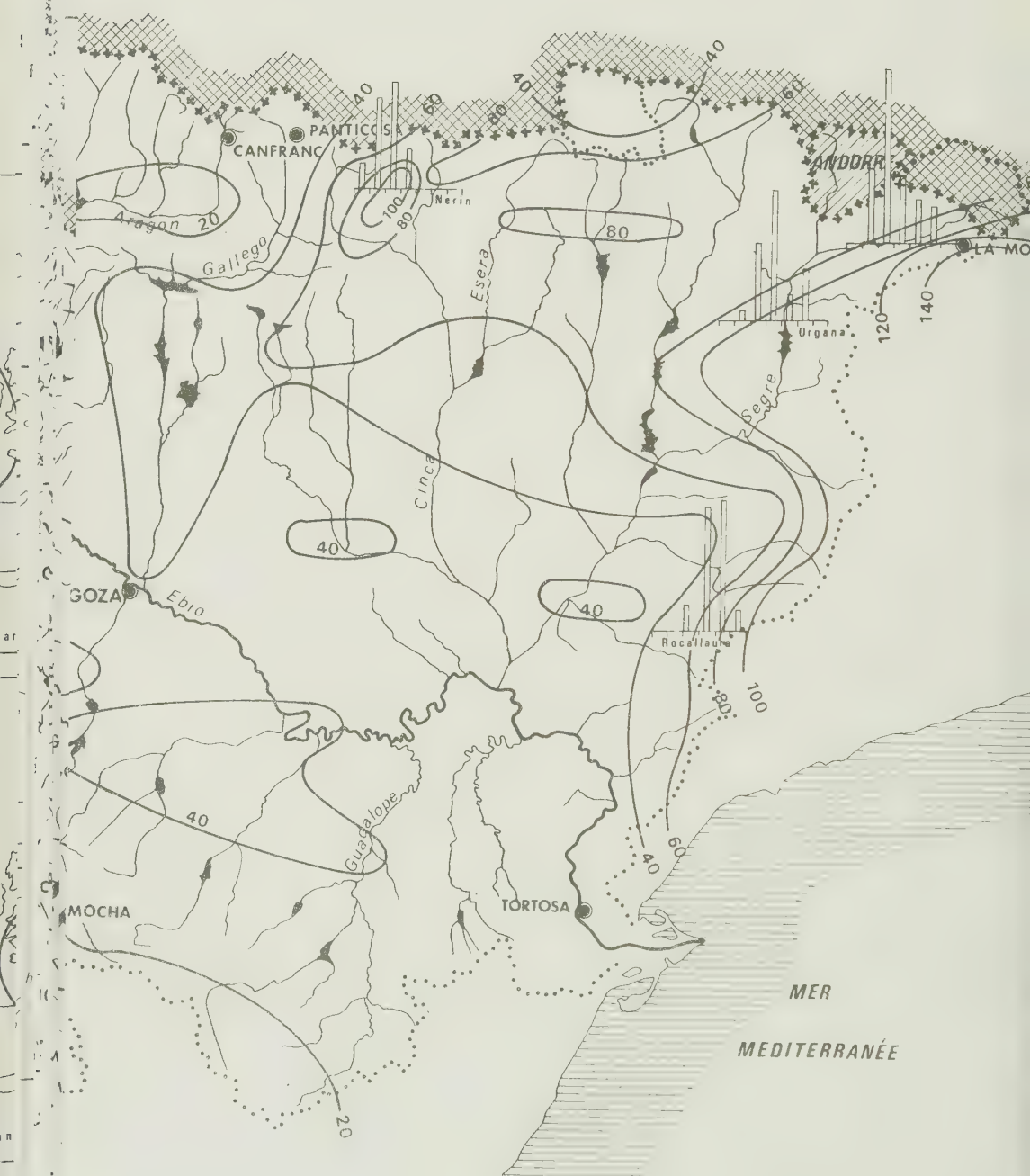




Fig.XXXX

CARTE DE LA PLUIE  
U 23 AU 29 MARS 1960

# F R A N C E



10 0 20 40 60 80 100 Km



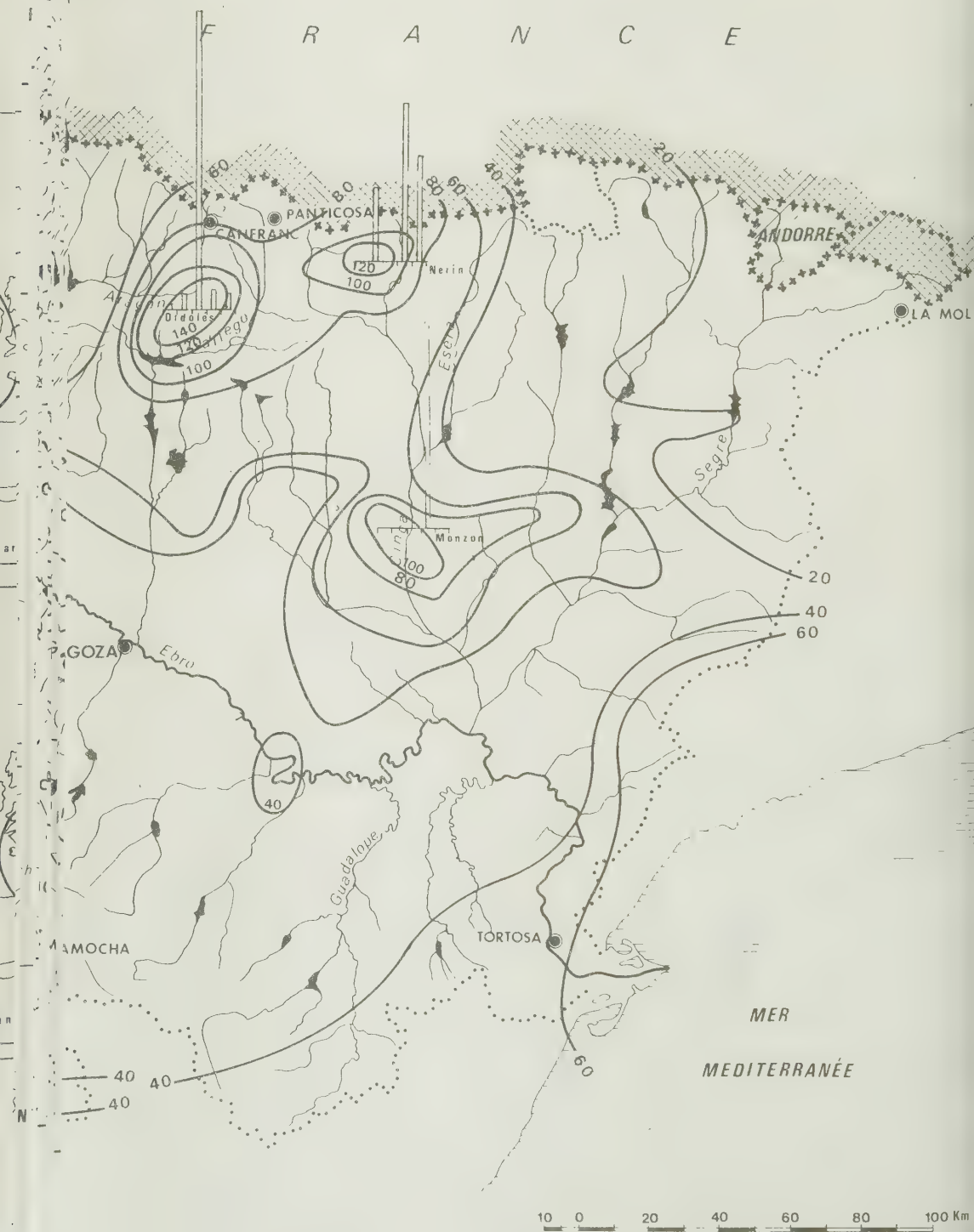
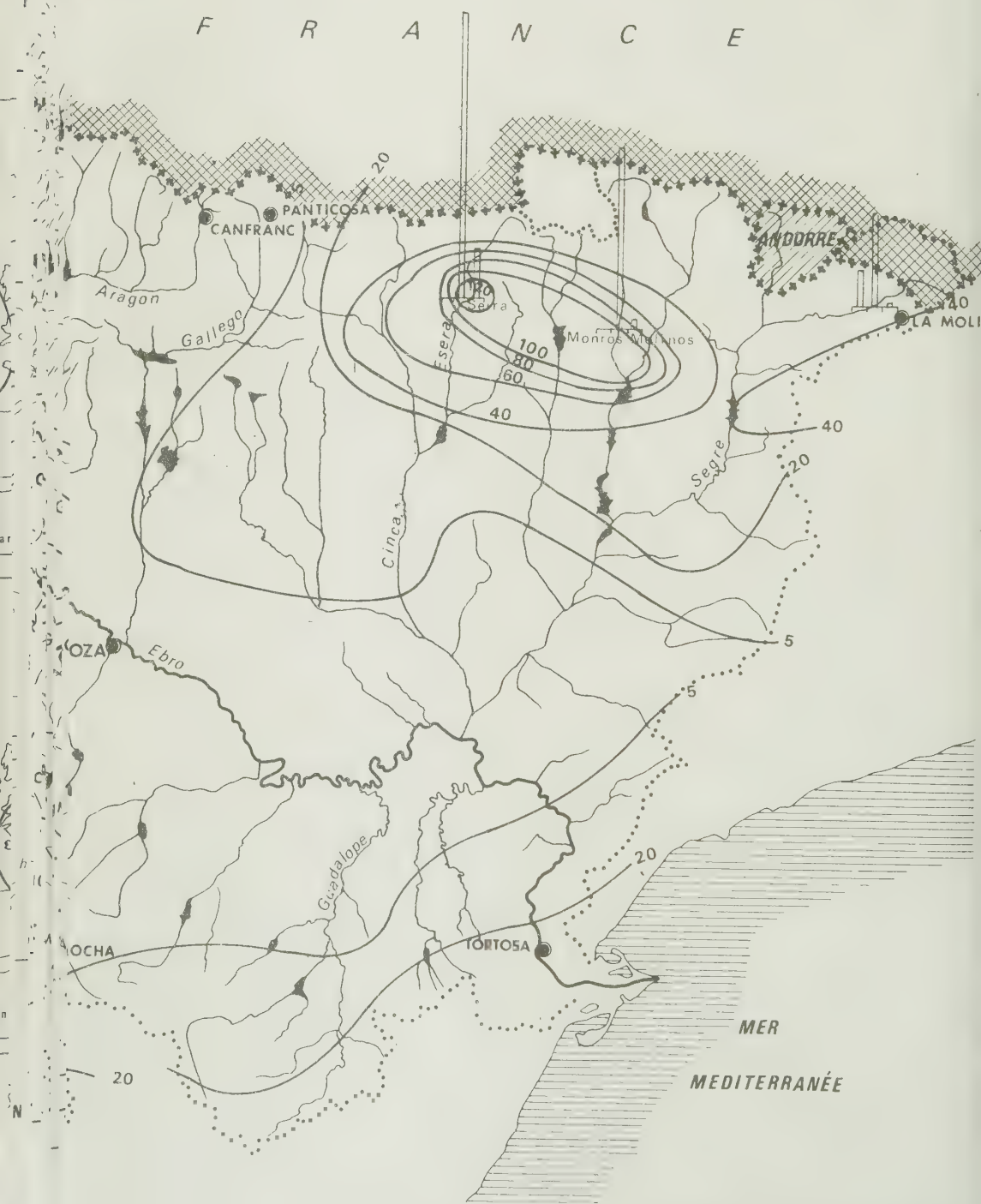




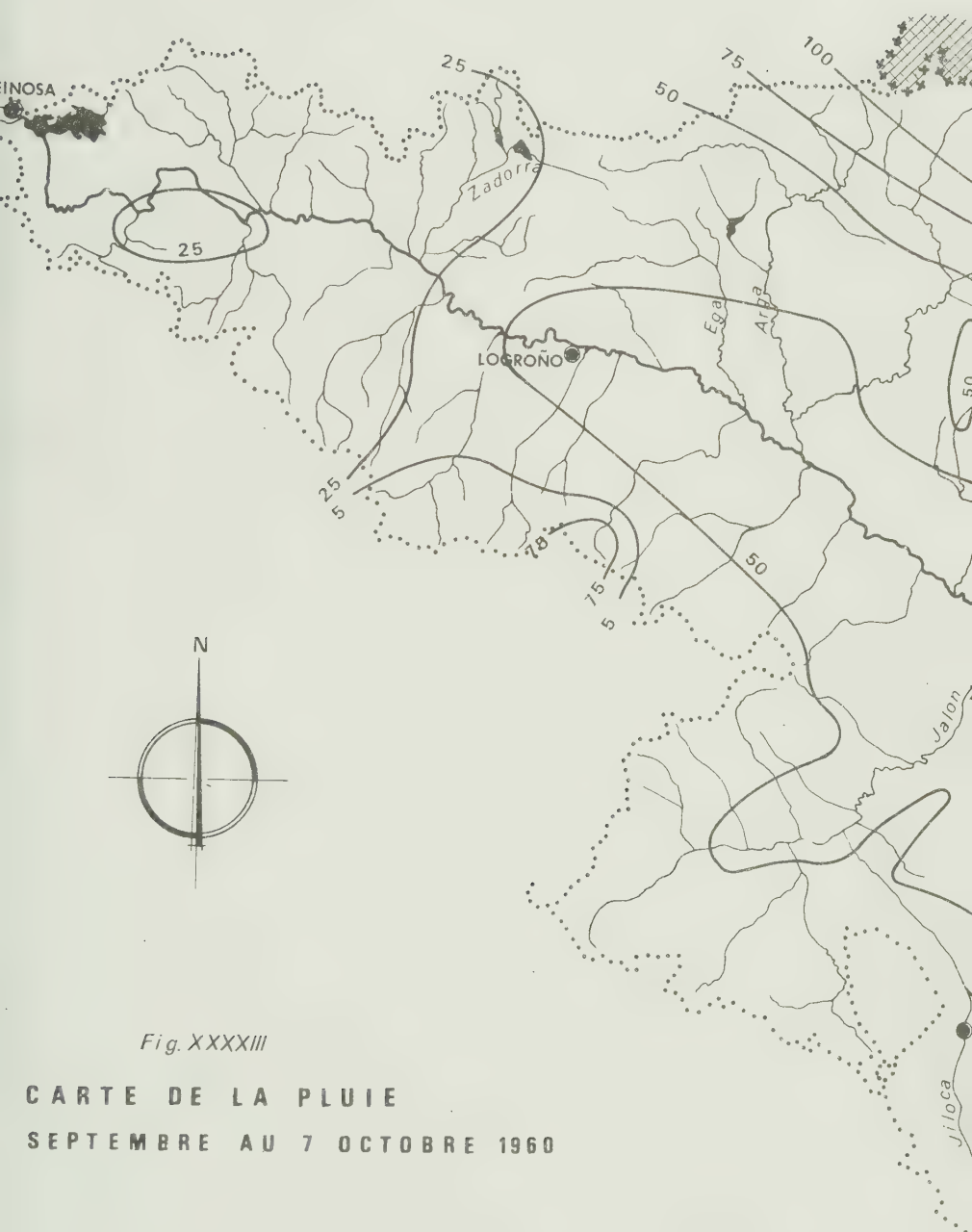
Fig. XXXXII

ARTE DE LA PLUIE  
14 AU 16 JUILLET 1960

F R A N C E



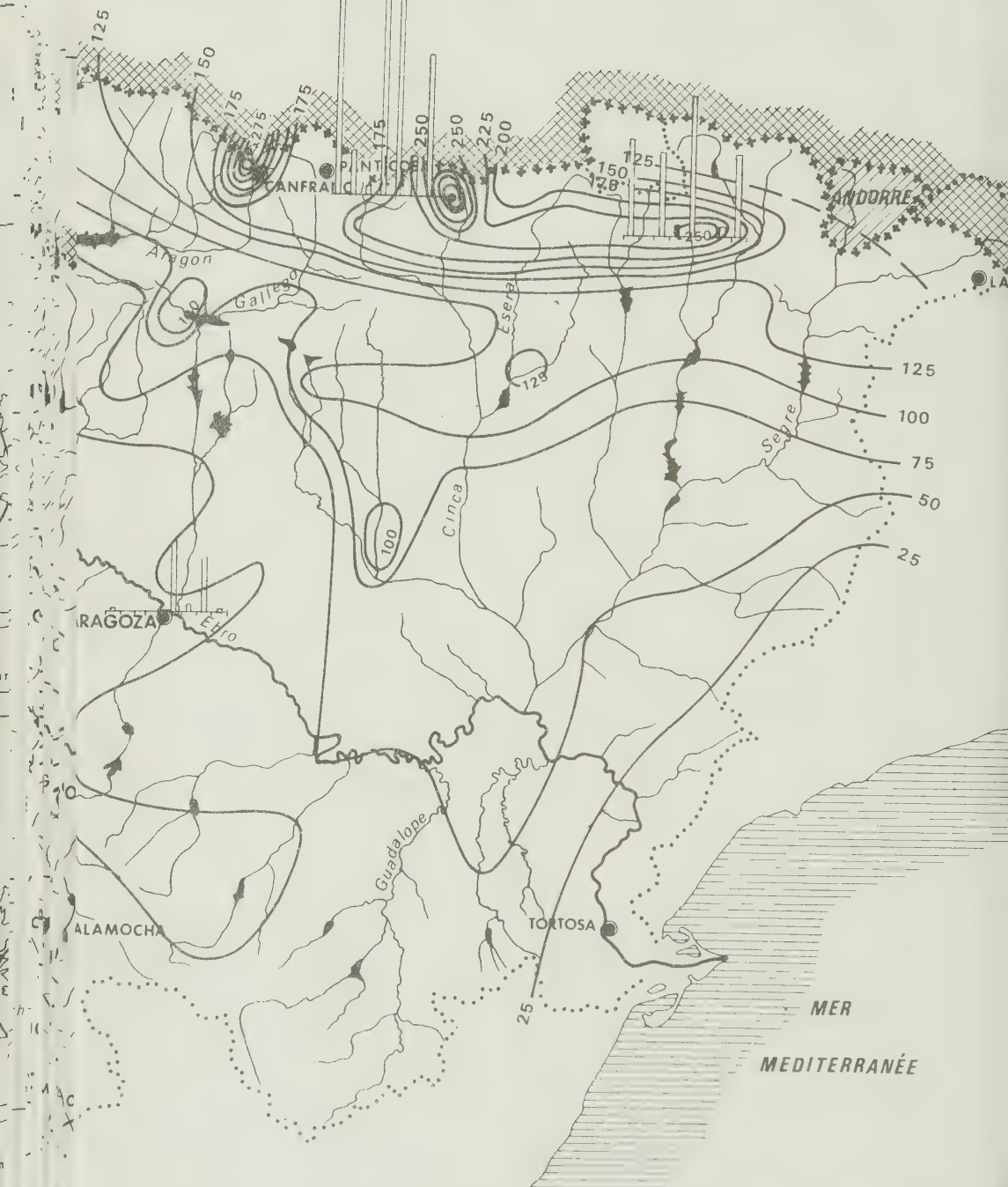
10 0 20 40 60 80 100 Km



*Fig. XXXXIII*

CARTE DE LA PLUIE  
SEPTEMBRE AU 7 OCTOBRE 1960

F R A N C E



10 0 20 40 60 80 100

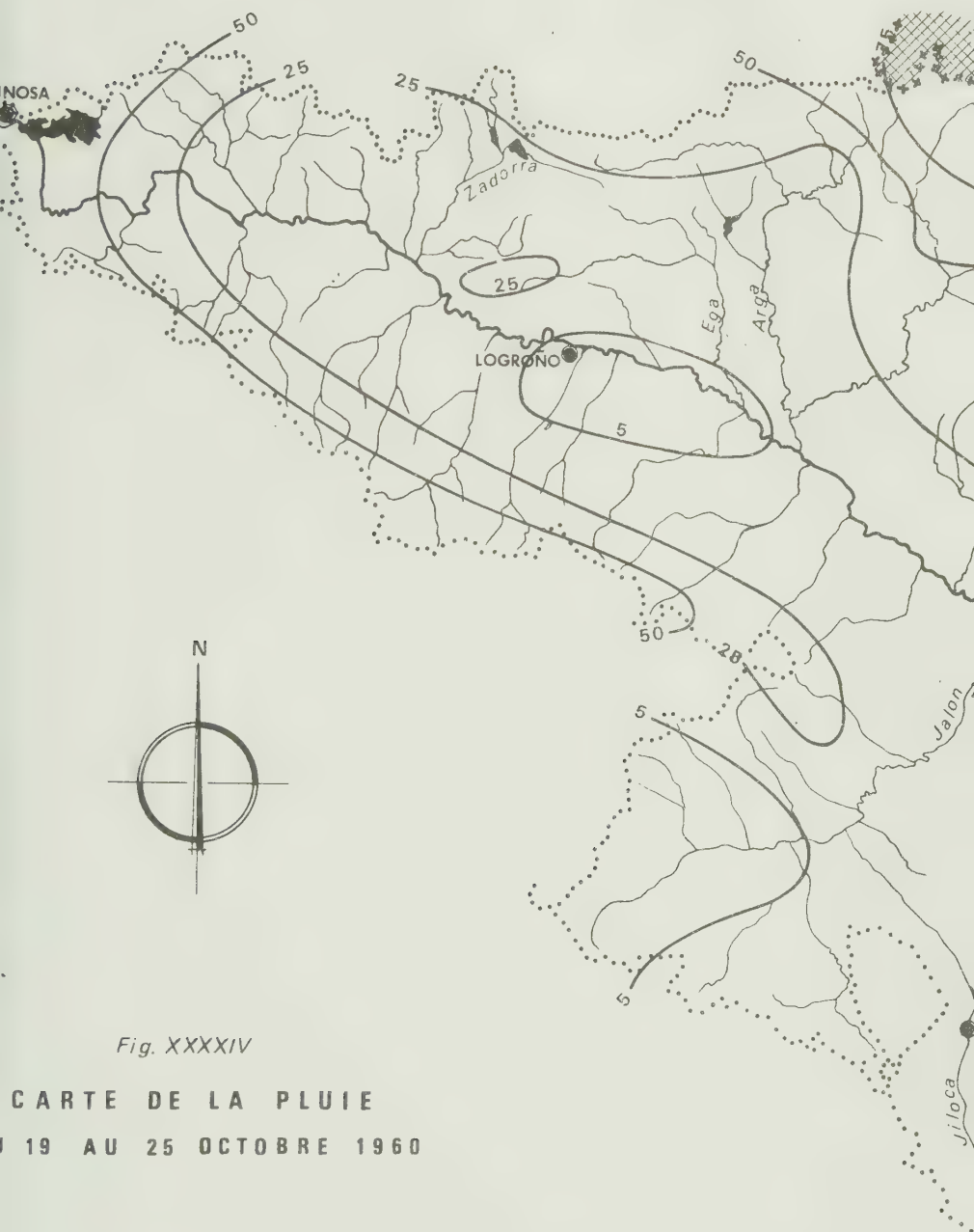
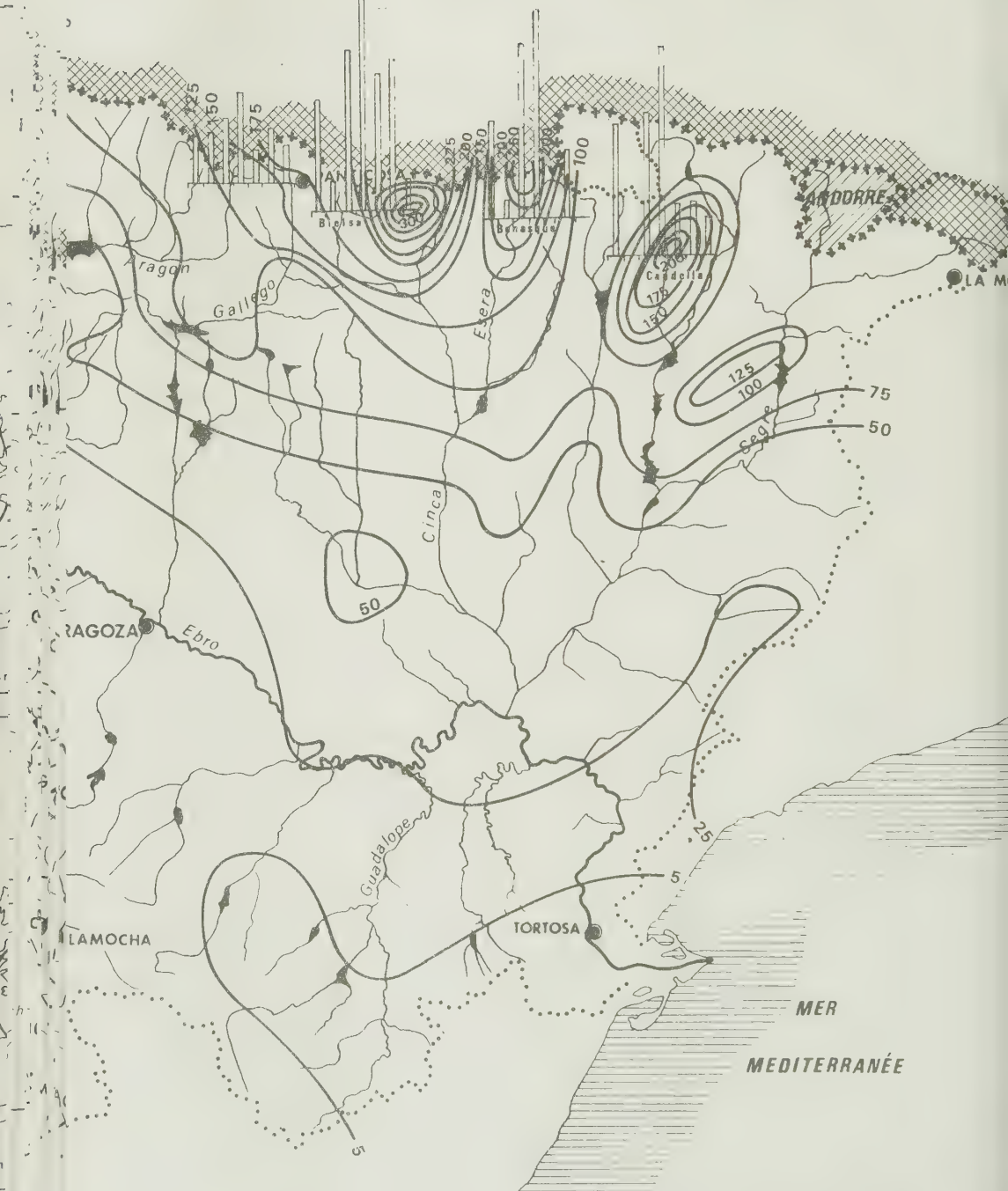


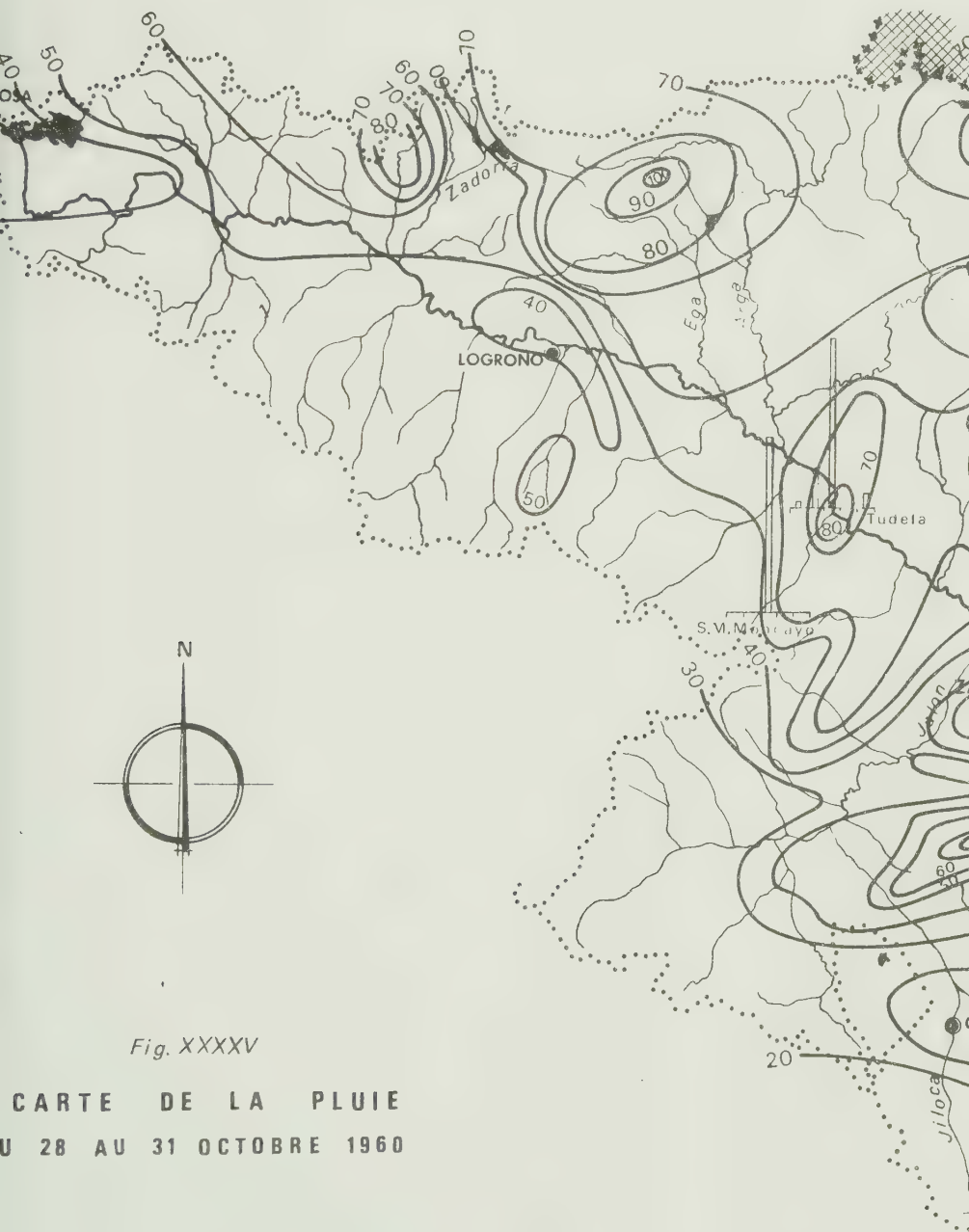
Fig. XXXXIV

CARTE DE LA PLUIE  
 19 AU 25 OCTOBRE 1960

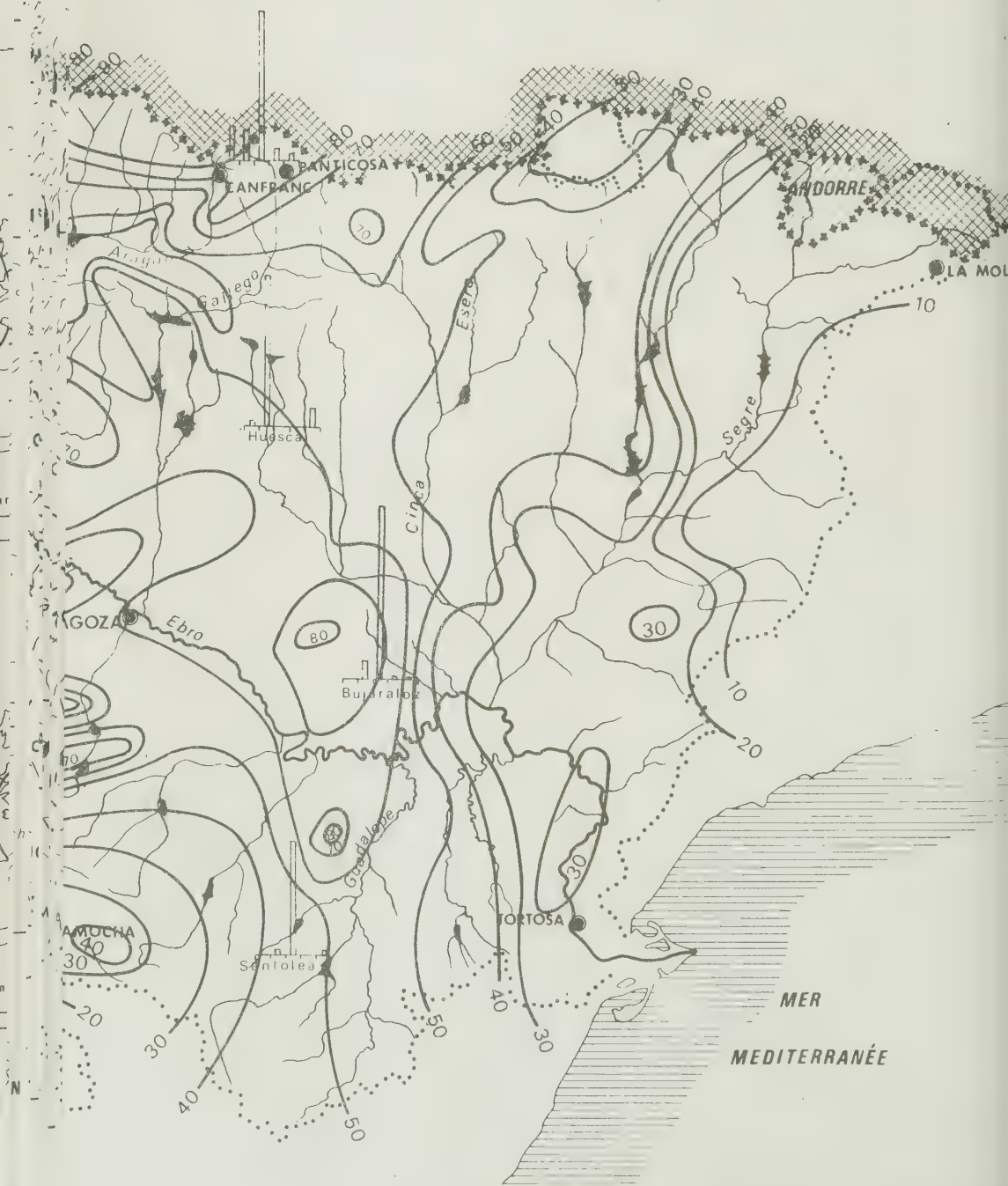
# F R A N C E



10 0 20 40 60 80 100



F R A N C E



10 0 20 40 60 80 100 Km

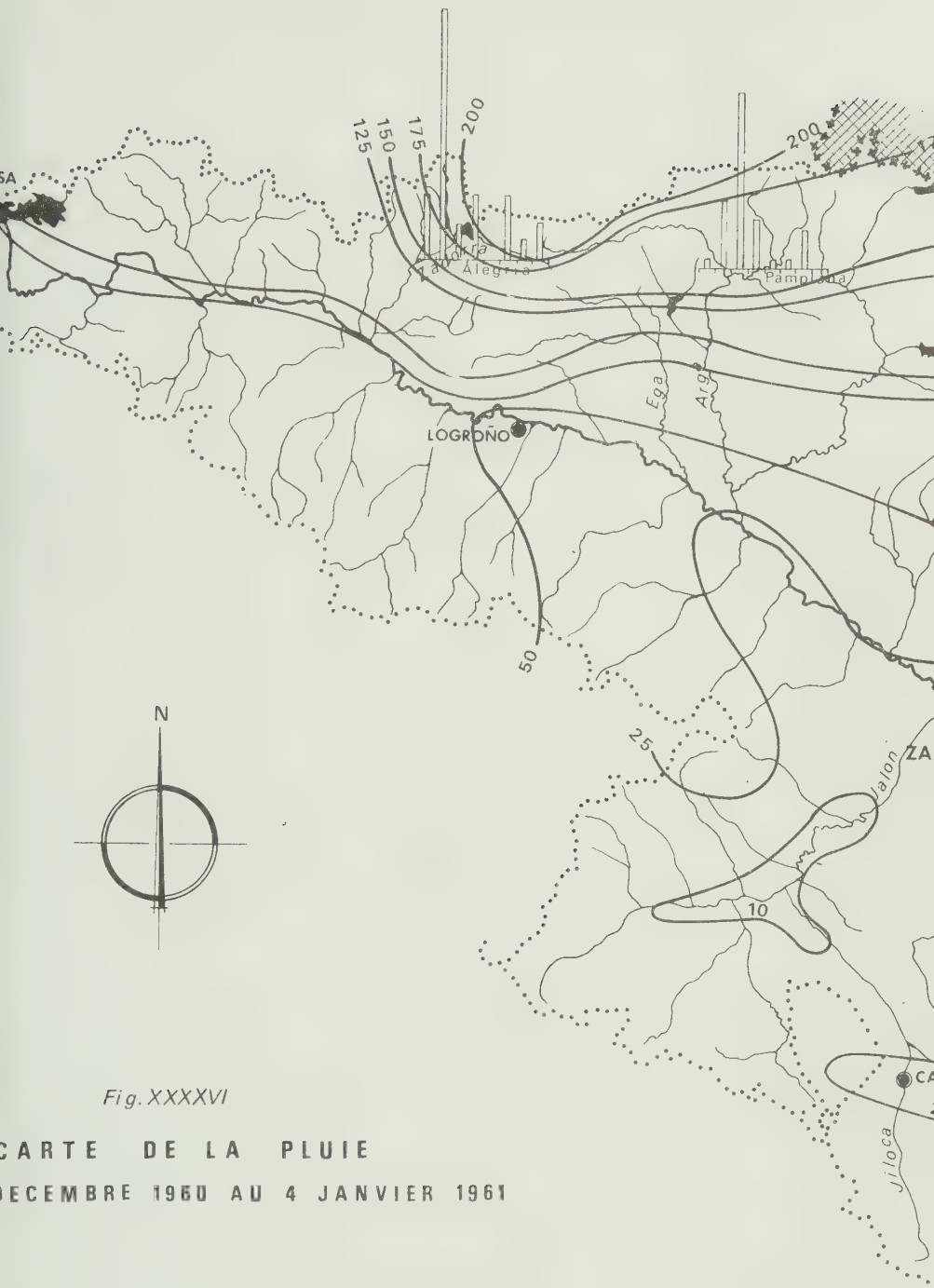
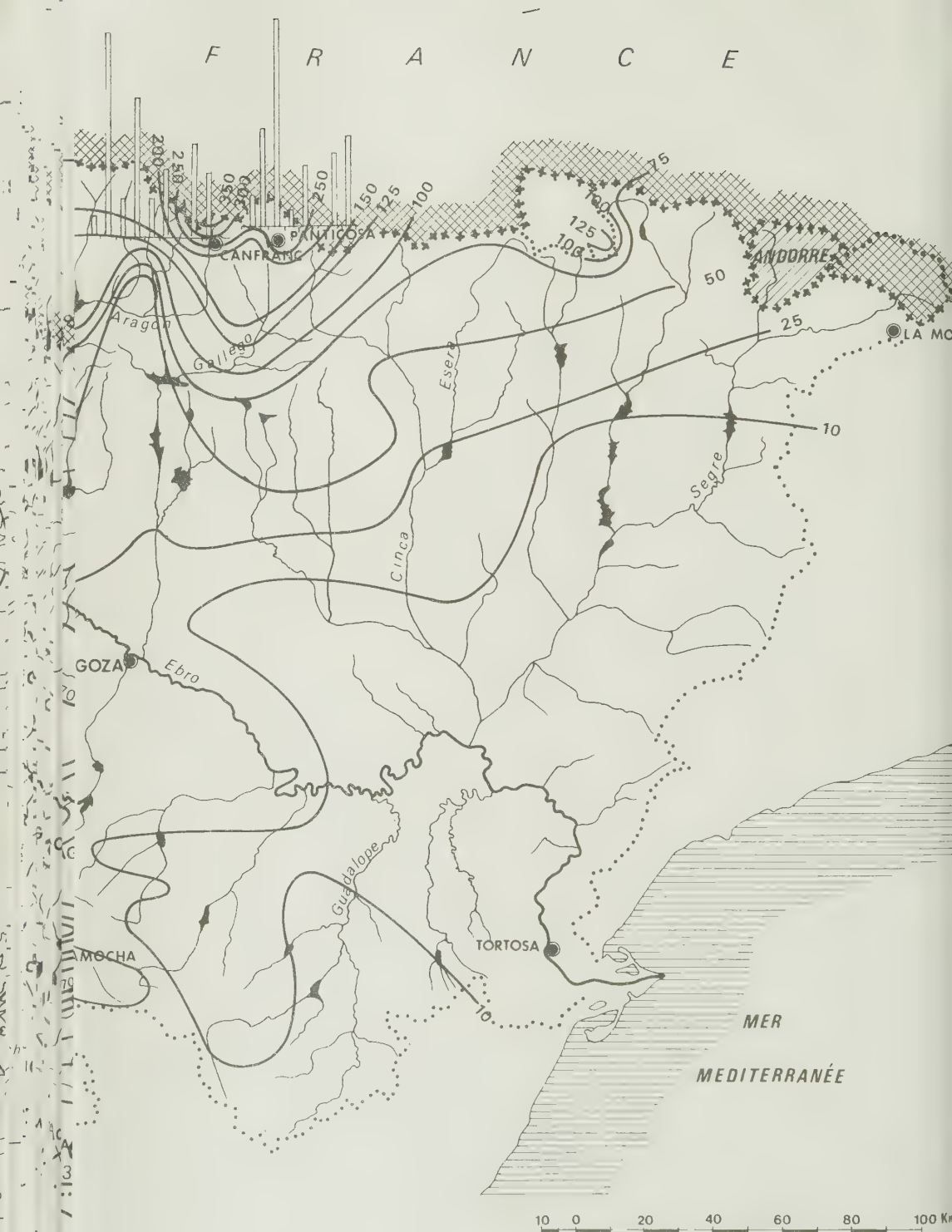


Fig. XXXXVI

CARTE DE LA PLUIE  
DECEMBRE 1960 AU 4 JANVIER 1961

# F R A N C E



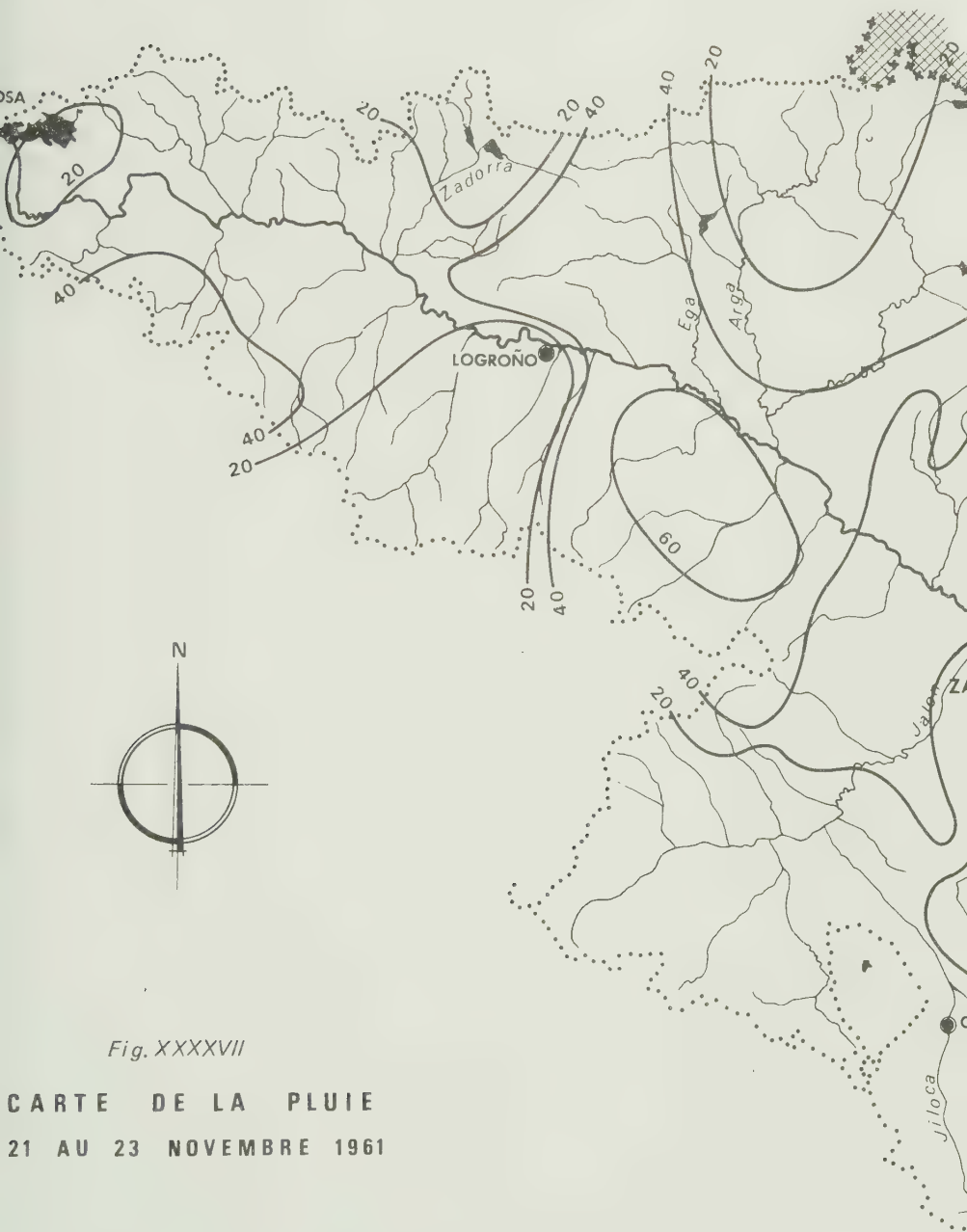
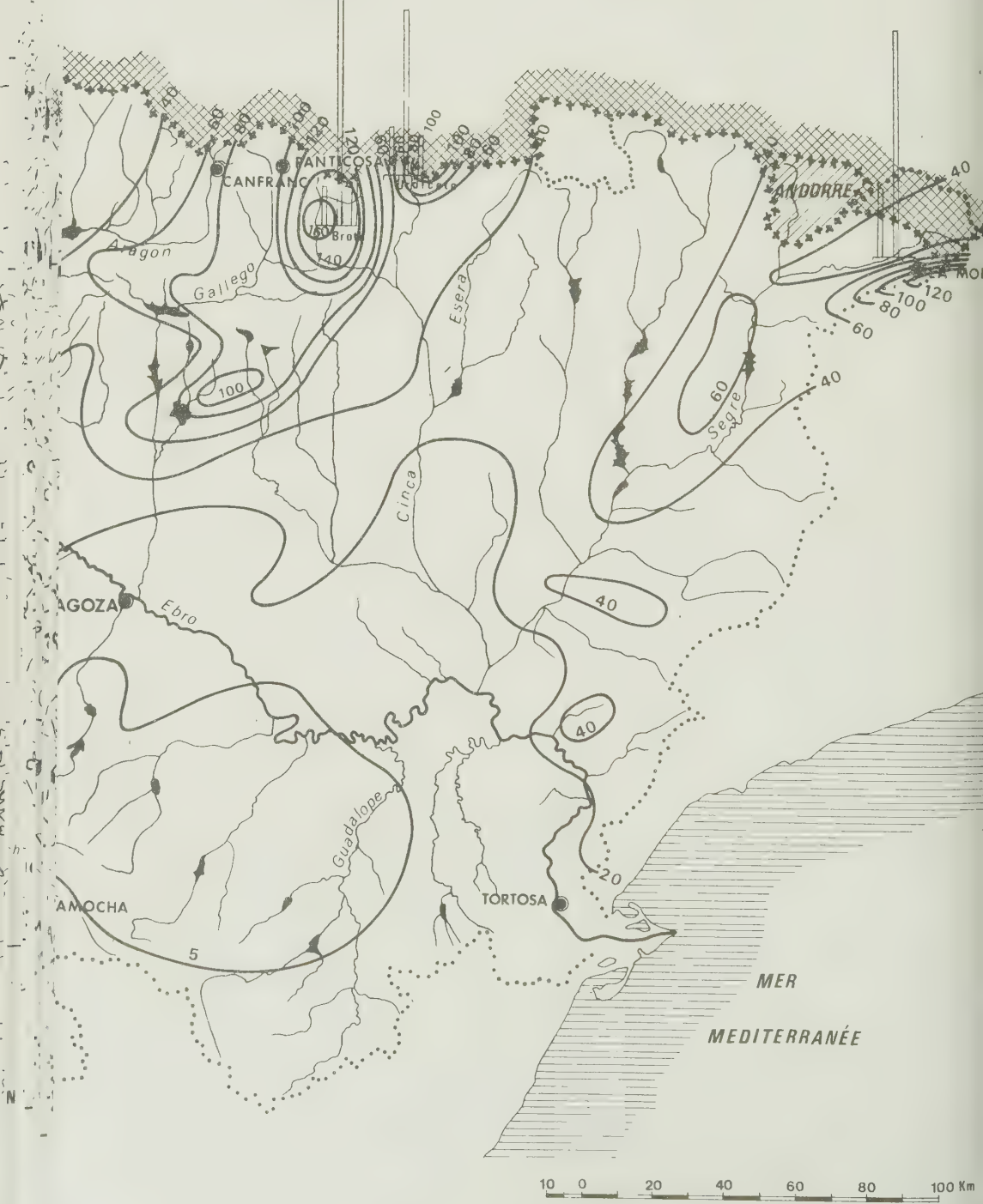


Fig. XXXXVII

CARTE DE LA PLUIE  
21 AU 23 NOVEMBRE 1961

F R A N C E



10 0 20 40 60 80 100 Km

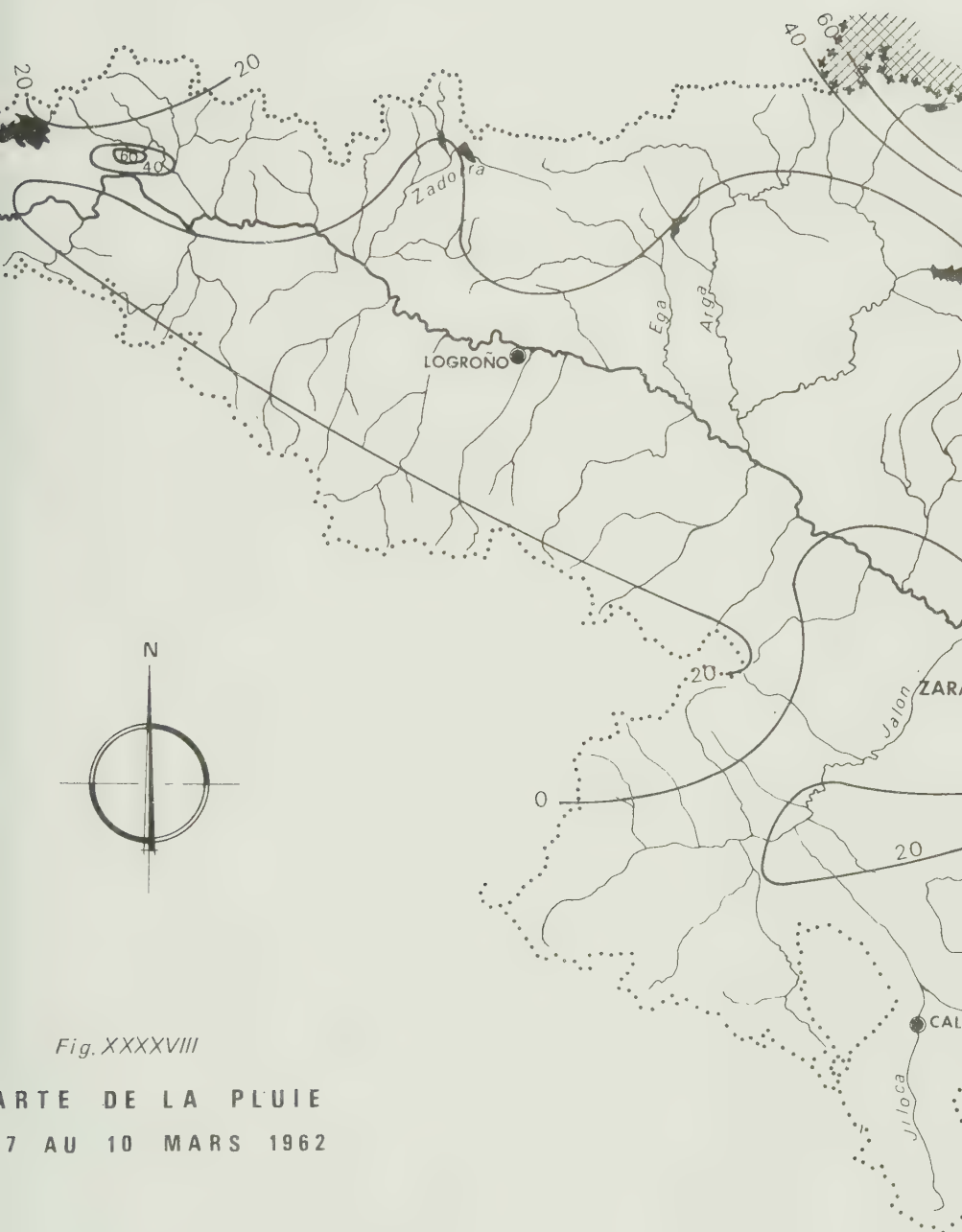
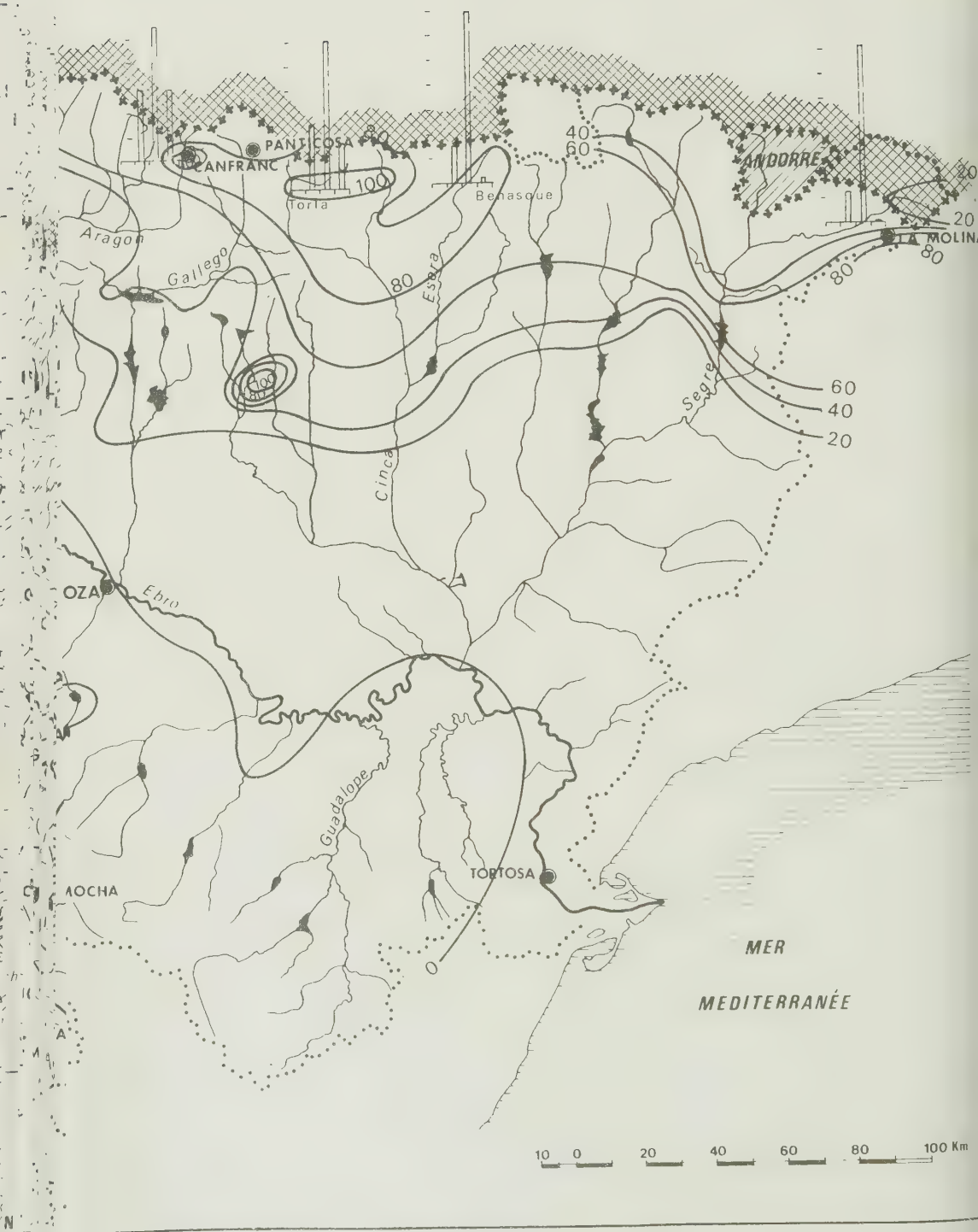


Fig. XXXXVIII

ARTE DE LA PLUIE  
7 AU 10 MARS 1962



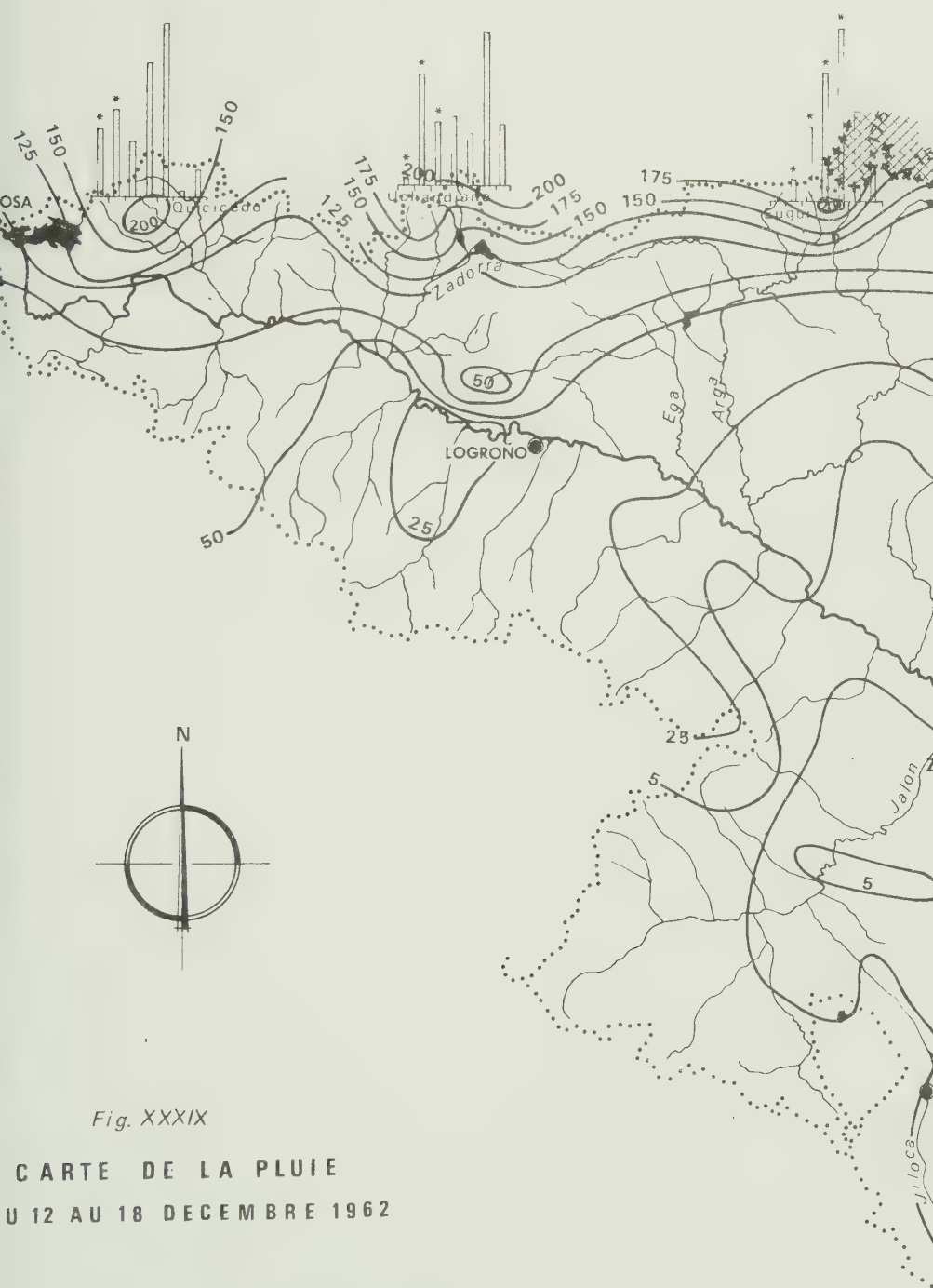


Fig. XXXIX

CARTE DE LA PLUIE  
U 12 AU 18 DECEMBRE 1962

# F R A N C E

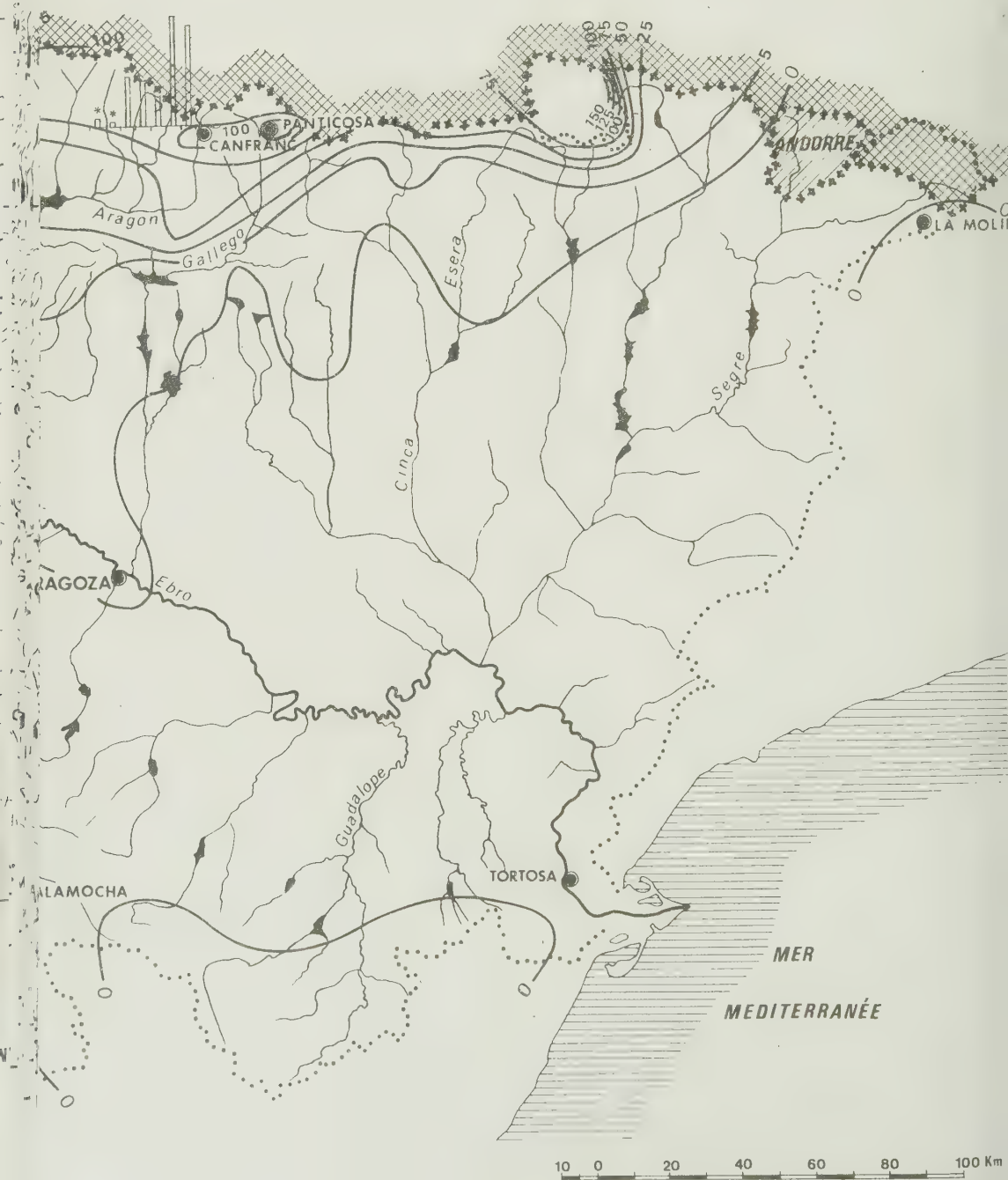
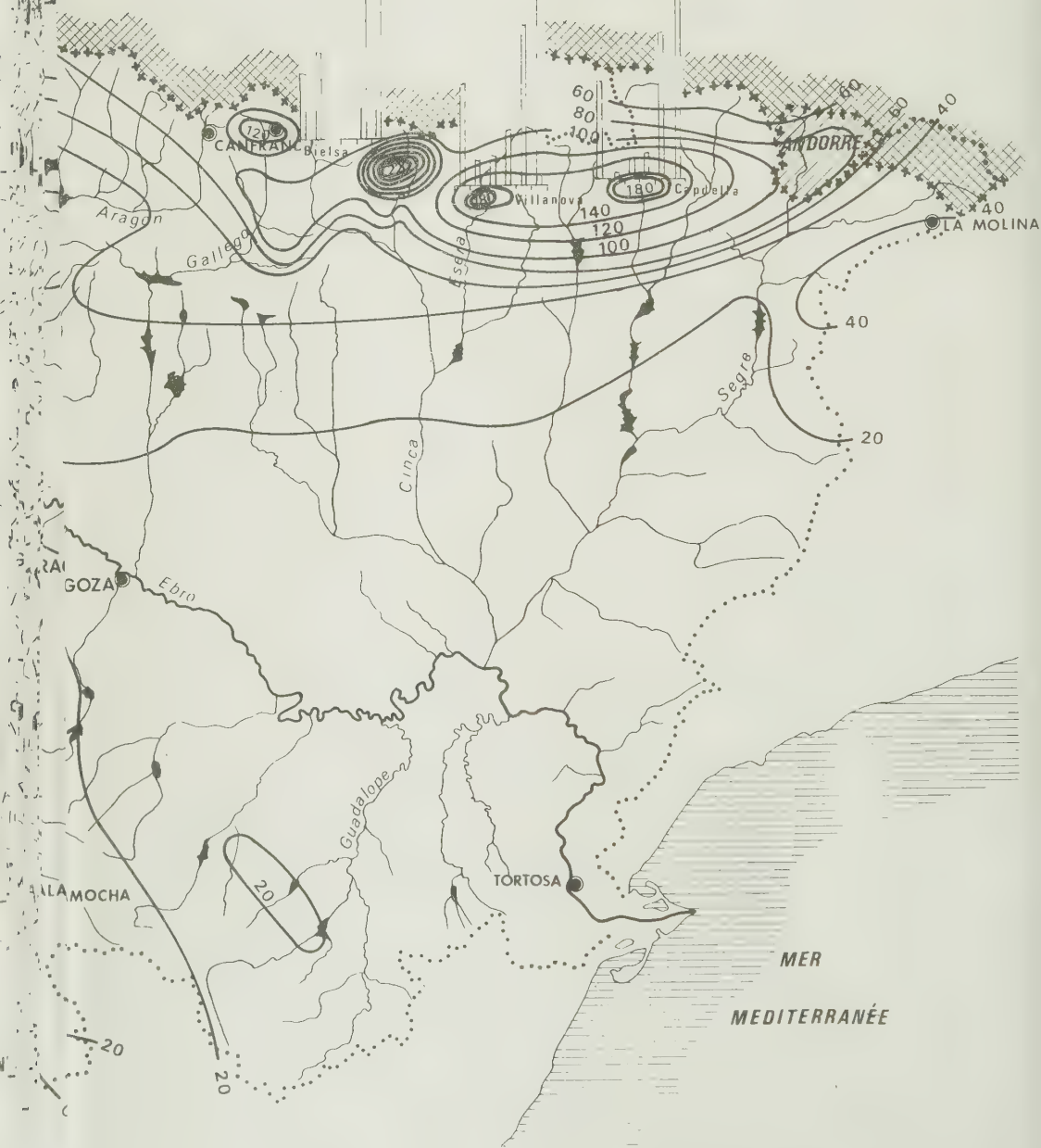




Fig. L

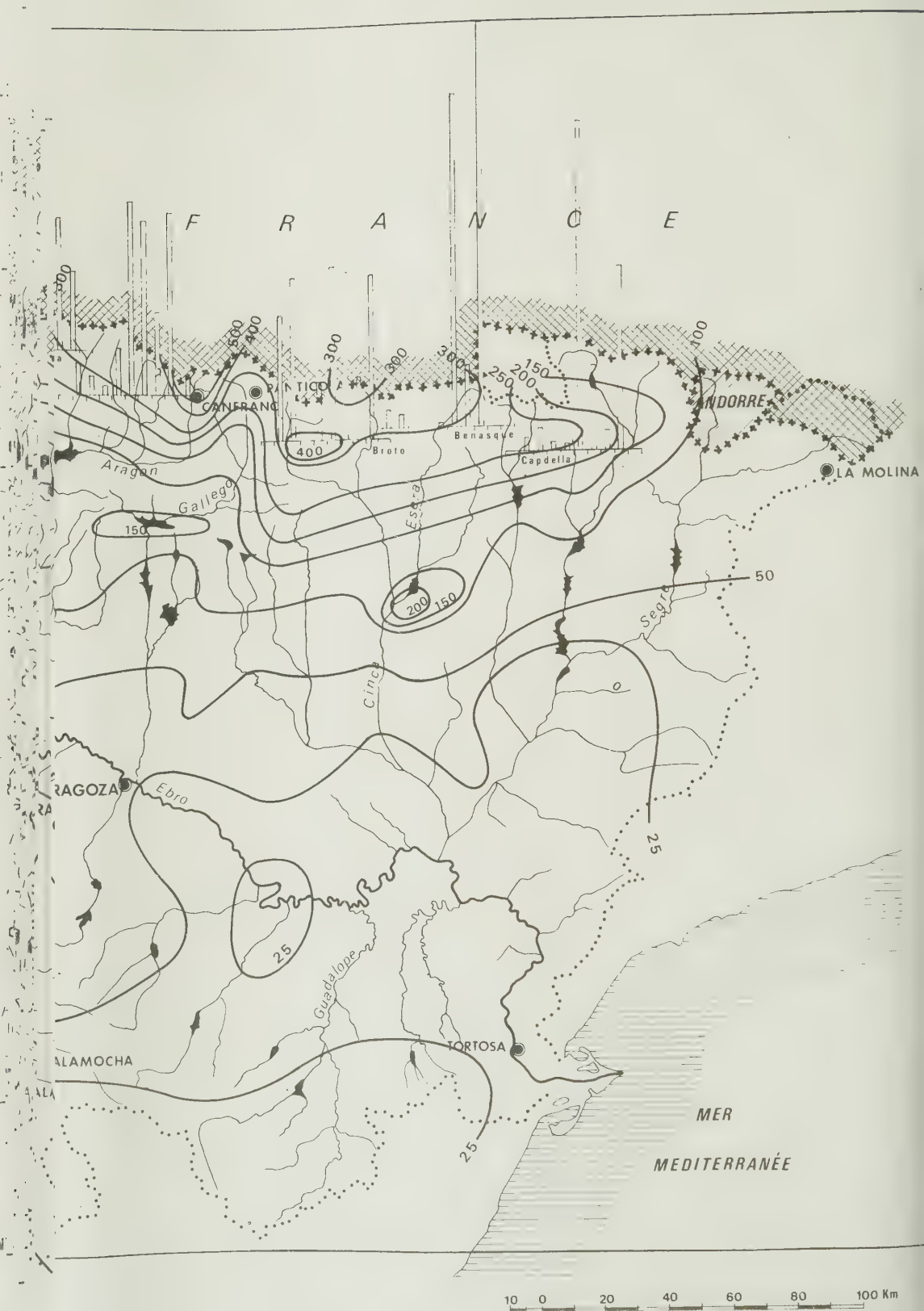
CARTE DE LA PLUIE  
DU 14 AU 16 NOVEMBRE 1963

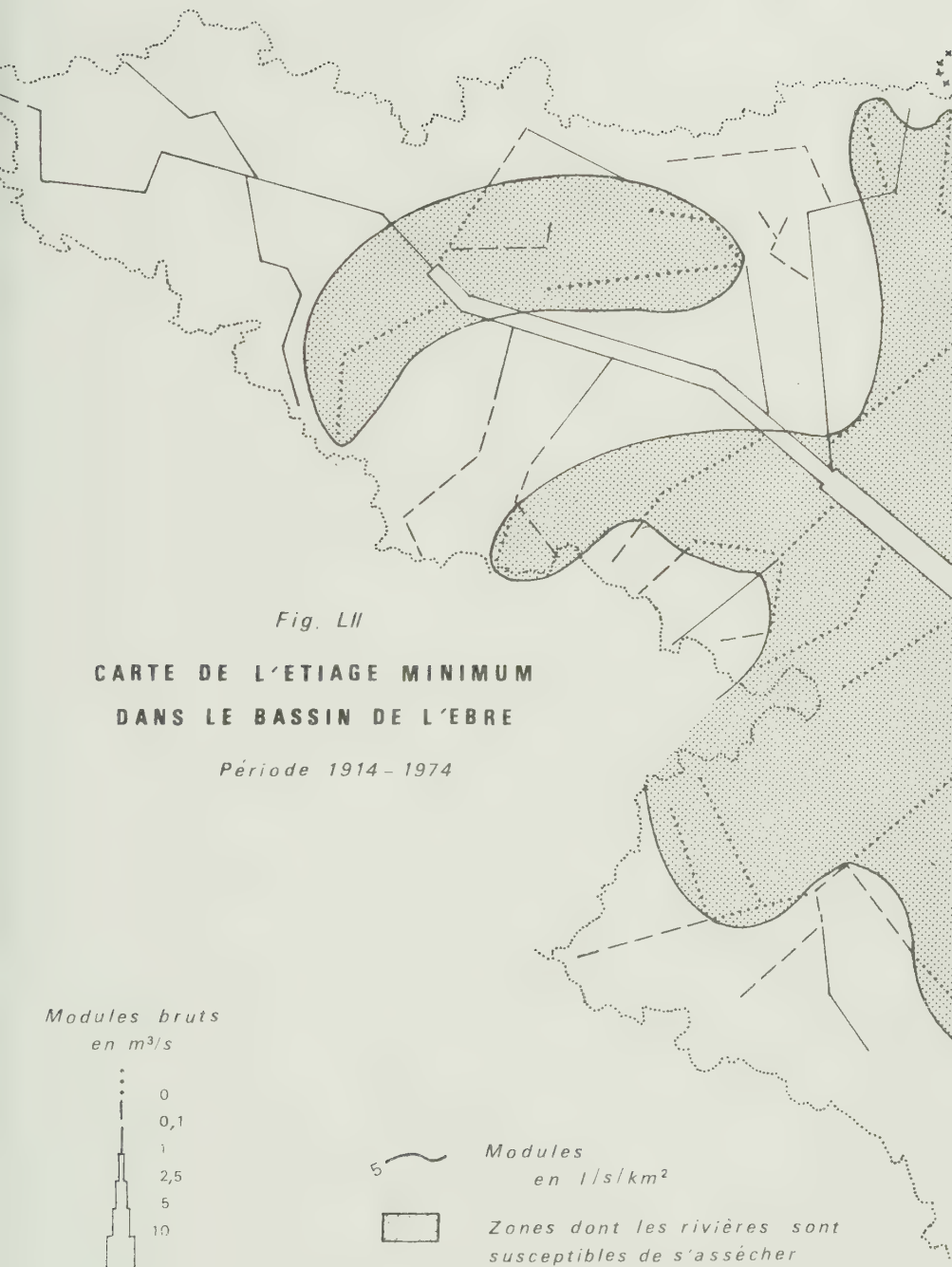
F R A N C E

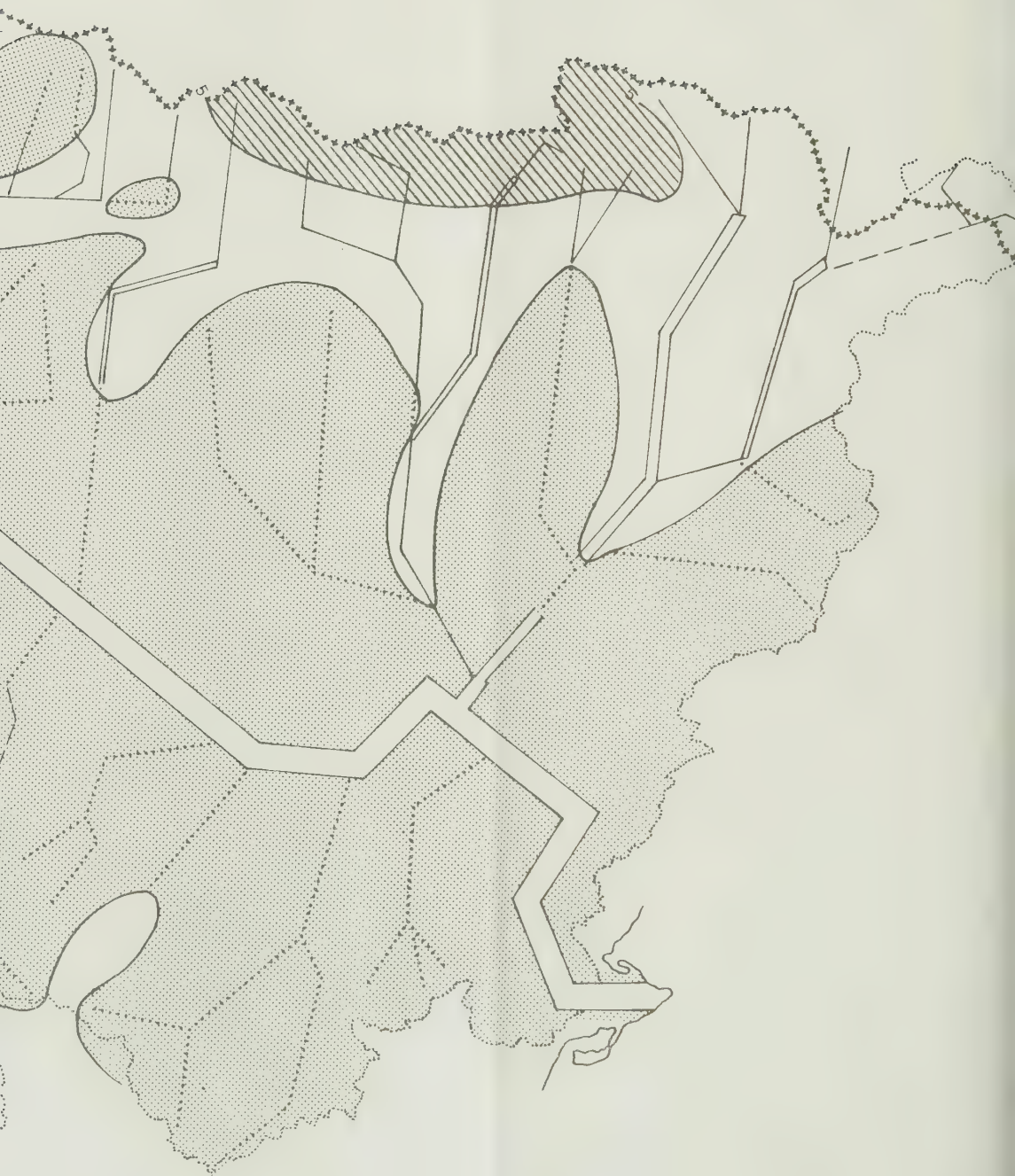


10 0 20 40 60 80 100 Km









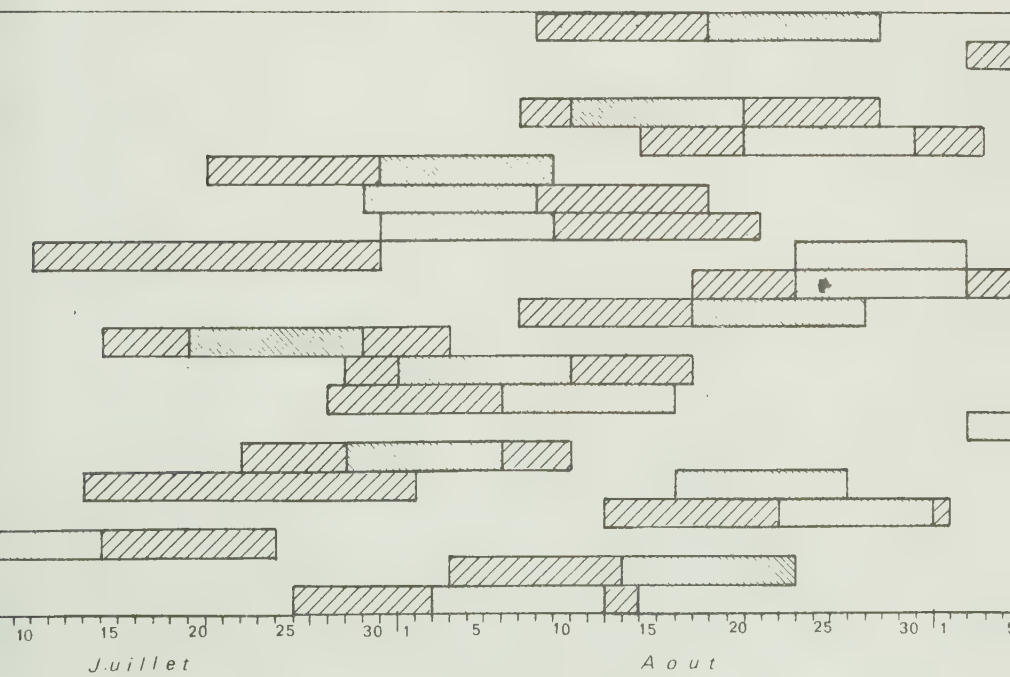
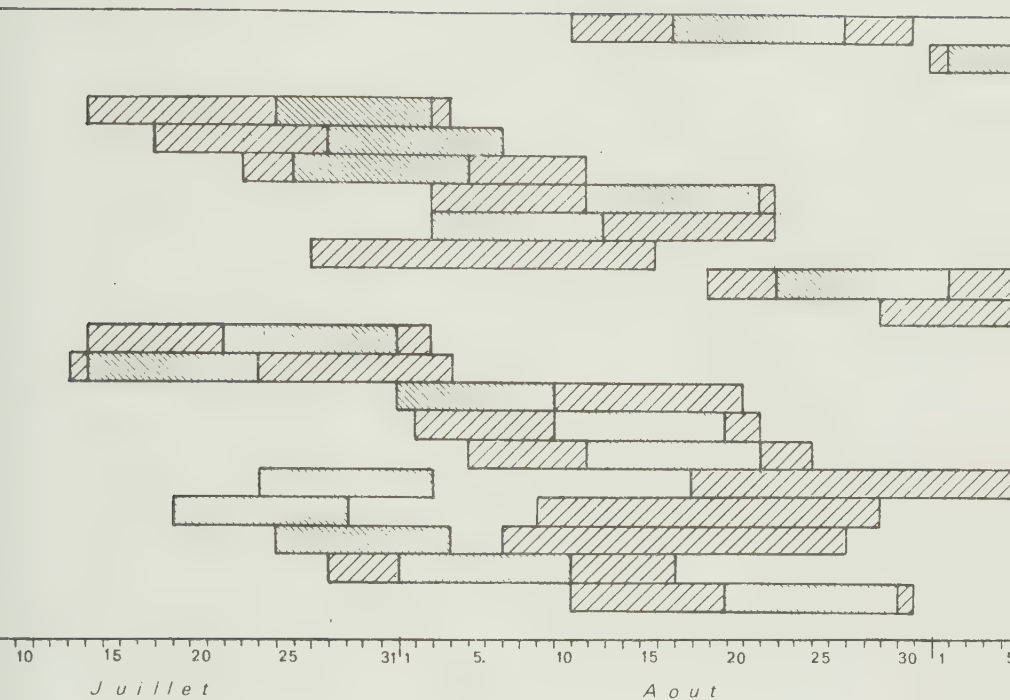


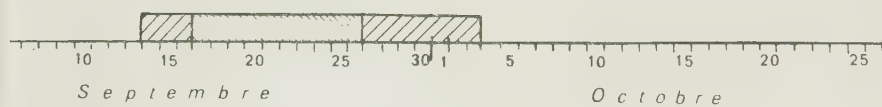
Fig. LIII: EPOQUE DES ETIAGES

I A TORTOSA  
II A ZARAGOZA

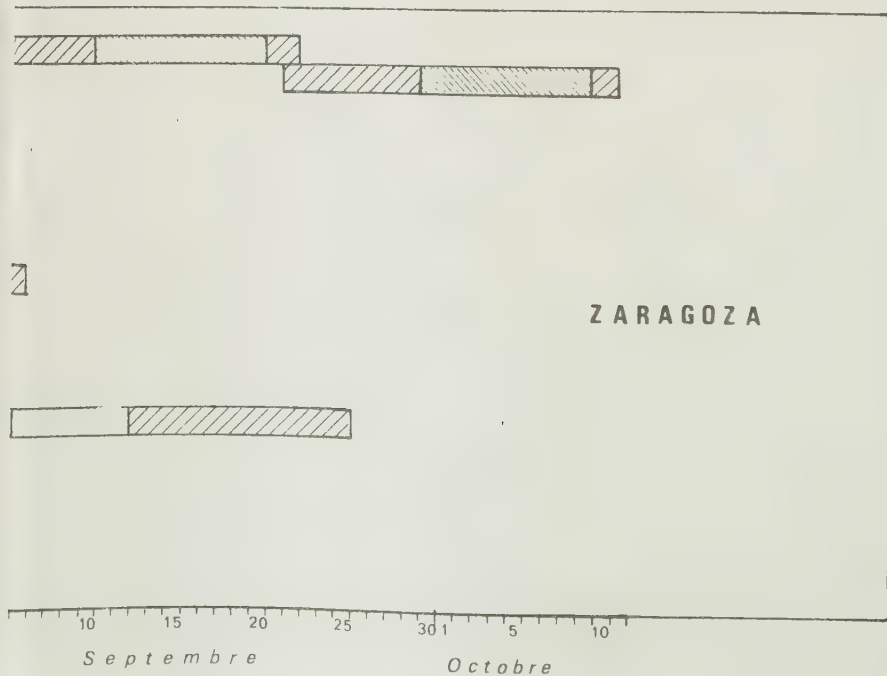
  $Q_m(10)$

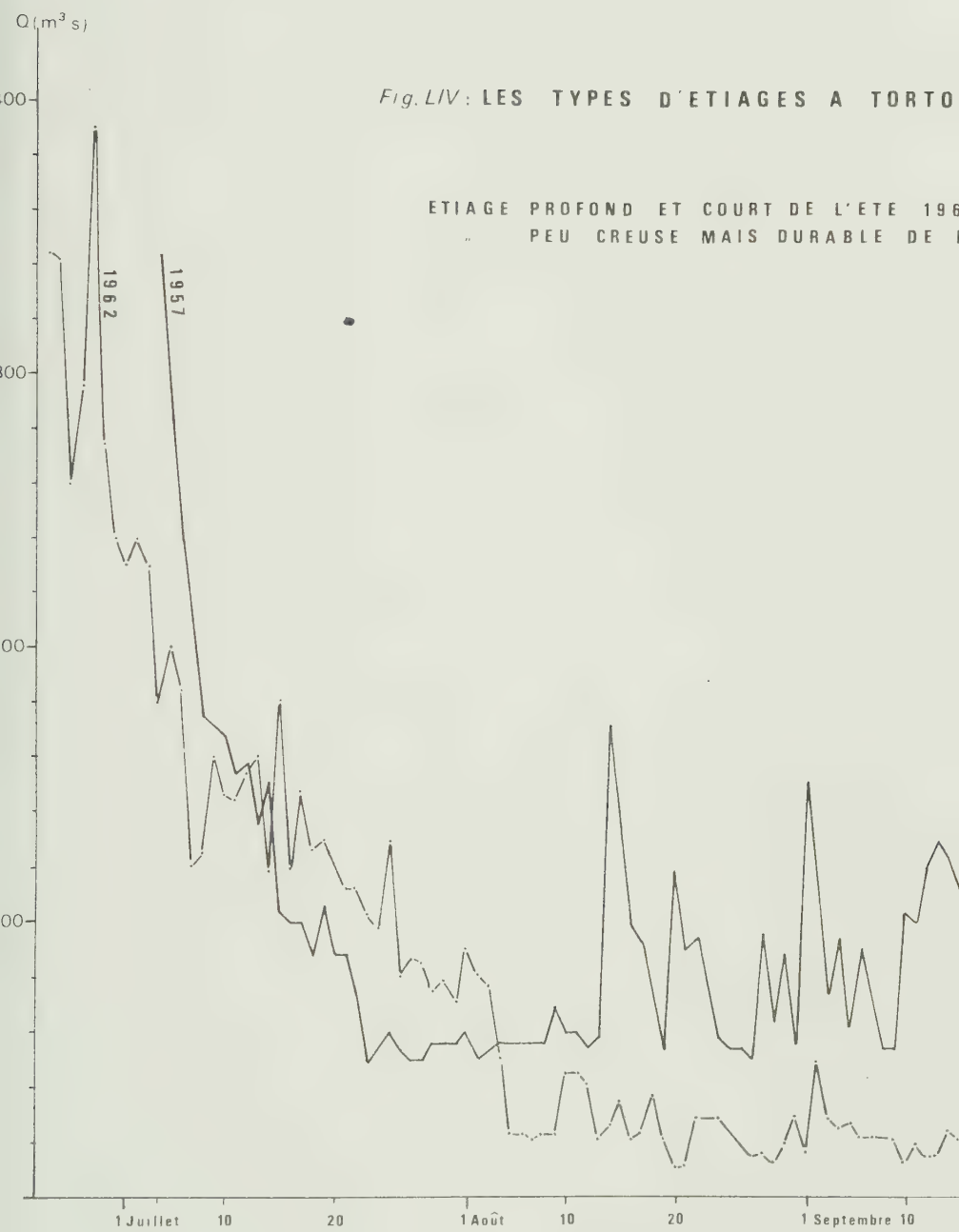
  $Q_m(20)$

TORTOSA



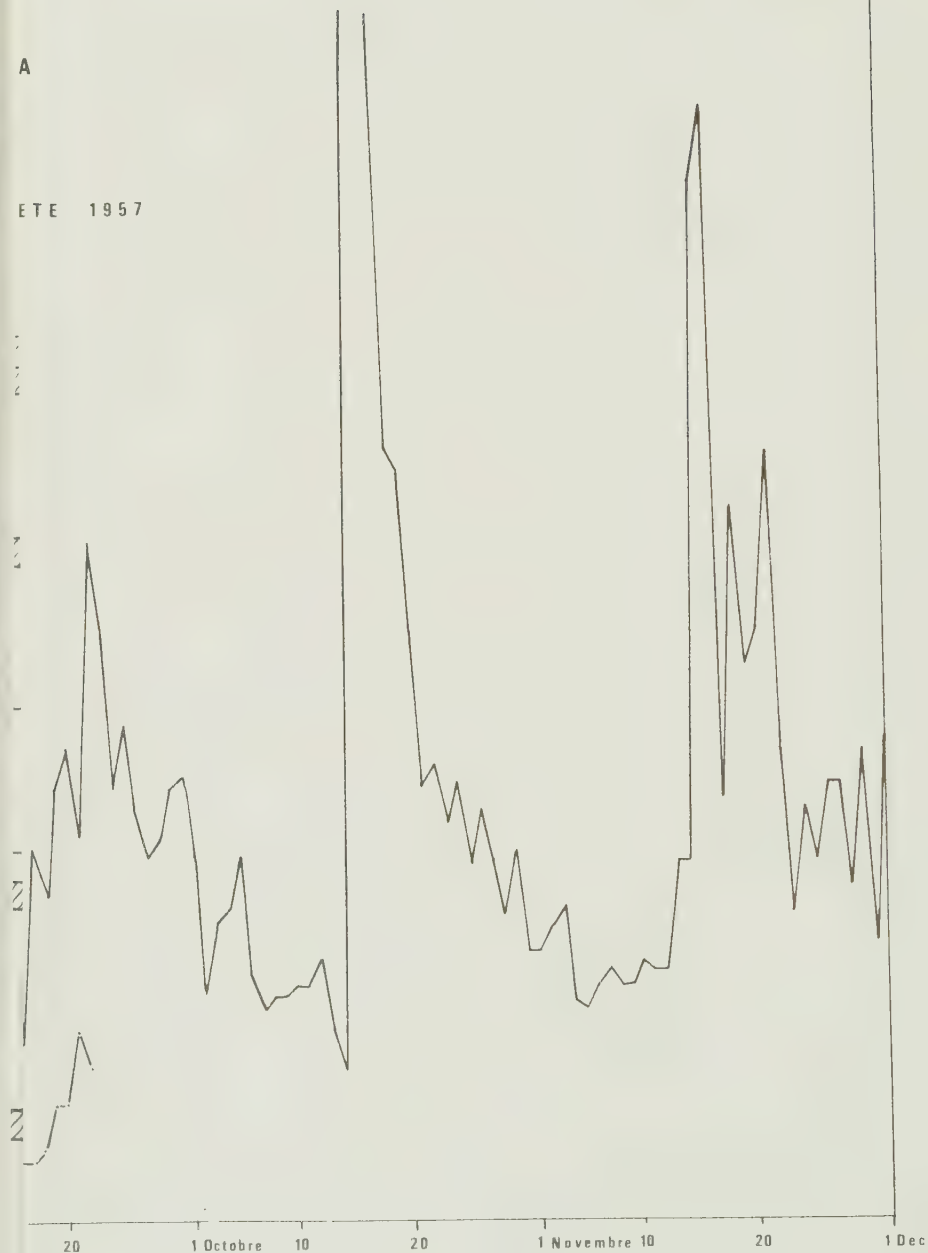
ZARAGOZA





A

ETE 1957



# SECHERESSE ET

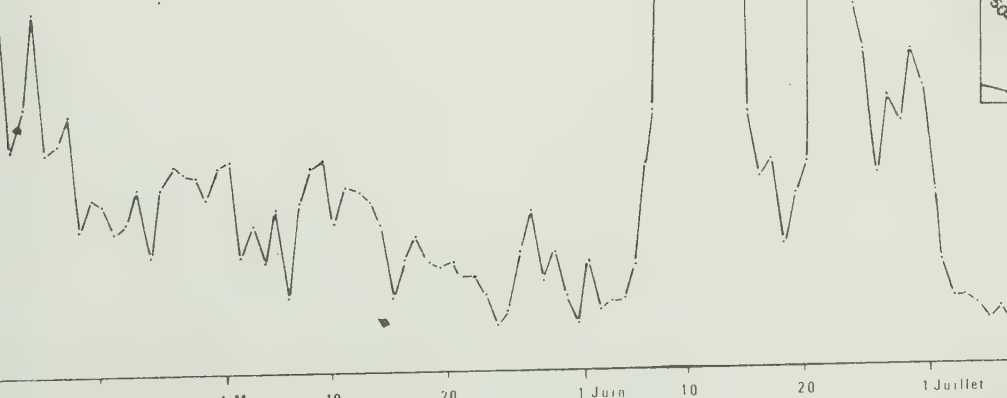
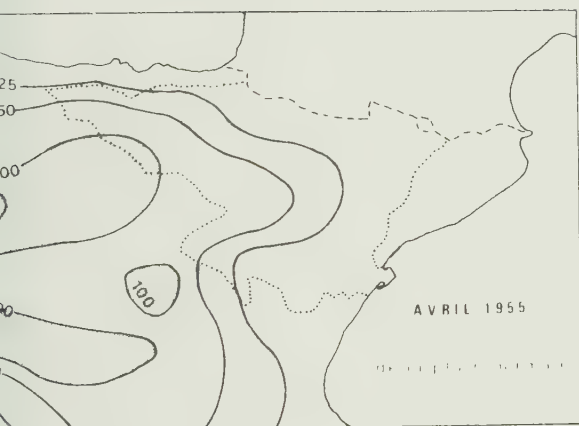


Fig. LV

# TIAGES AU COURS DE L'ETE 1955

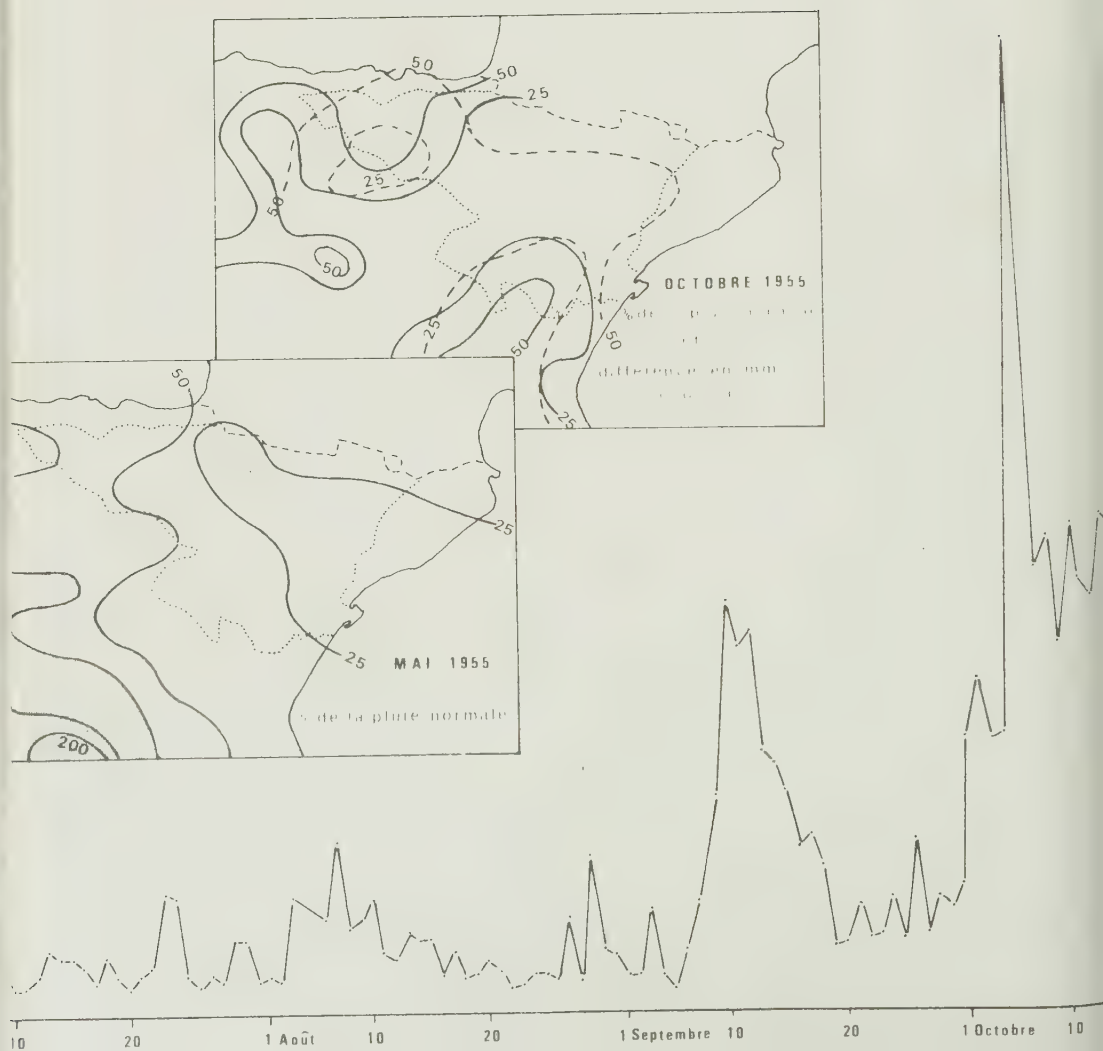


Fig. LVI

SECHERESSE ET ETIAGES AU CO

100

0

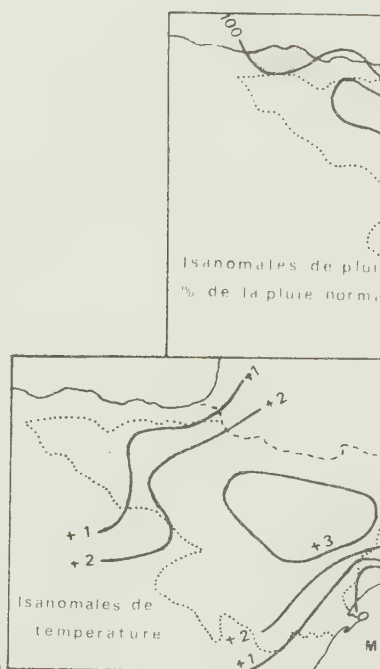
1 Juin 10 20 1 Juillet 10 20 1 Aout 10

Isanomaes de pluie  
% de la pluie normale

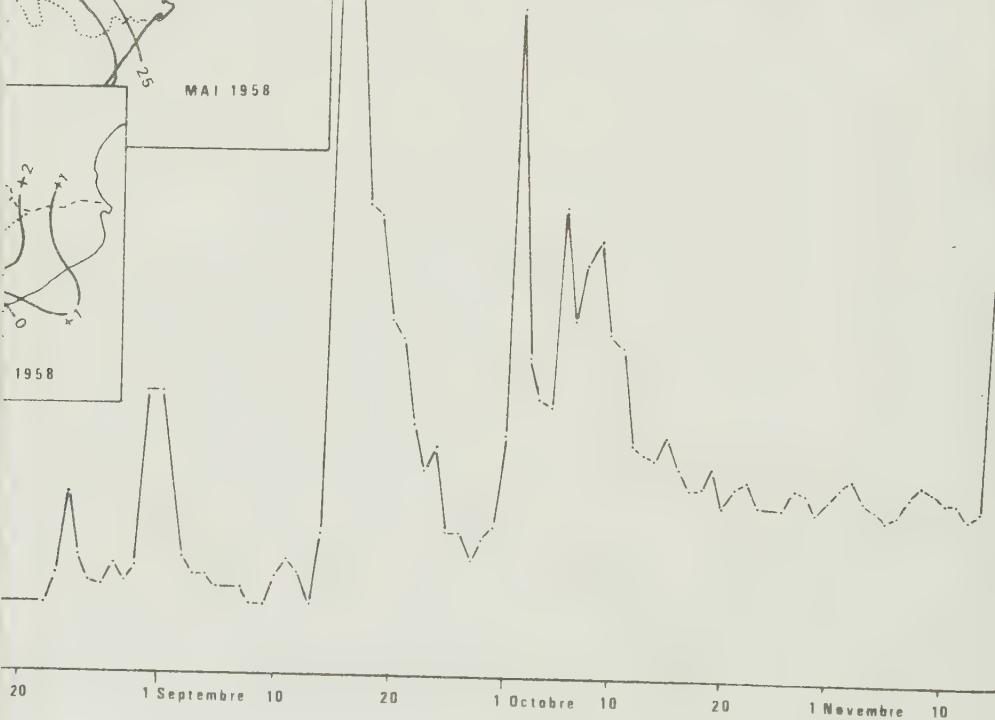
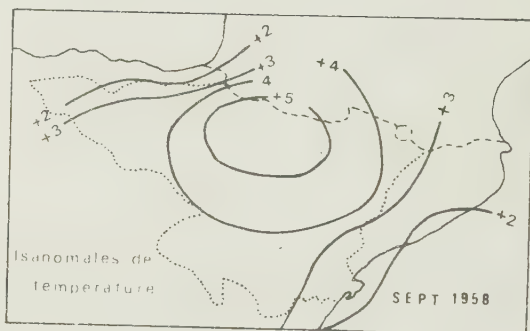
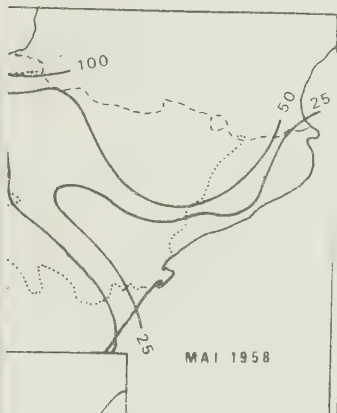
+1  
+2  
+3  
Isanomaes de  
temperature

M

SECHERESSE ET ETIAGES AU CO



# IRS DE L'ETE 1958



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| "                                                                   | "                   | " : pyrénéennes.          |
| "                                                                   | "                   | " : de versant ibérique.  |
| "                                                                   | "                   | " : générales.            |
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| "                                                                   | "                   | " : pyrénéennes.          |

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